Smart Beta Practical Applications: *Low Volatility*

January 2019 | By Daniel Ung, CFA, CAIA, FRM, *Senior Smart Beta ETF Strategist*

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 multiples[1] — 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.

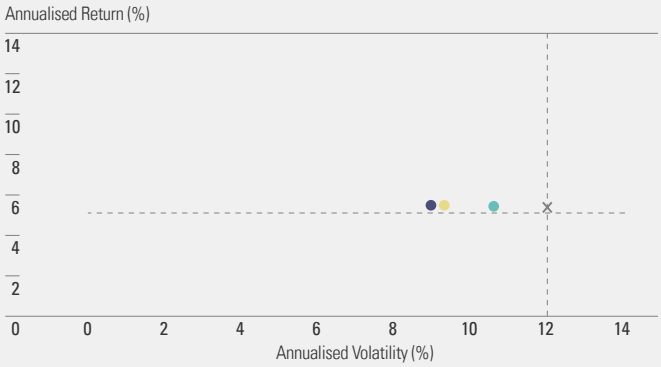
In this article, we examine how investors can use smart beta strategies, such as low volatility, to modify the return-risk characteristics of their strategic allocation.

Blending Low Volatility Equities as Part of Strategic Allocation

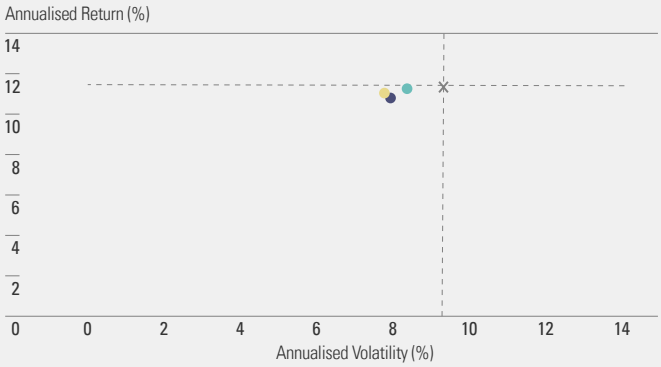
Figure 1 shows the return and risk characteristics of the blended portfolios compared with the S&P 500 benchmark. Over 1-, 3- and 6-year time horizons, **the blended portfolios attained a similar level of return, with the added benefit of achieving this through a moderated level of risk.** For this reason, 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

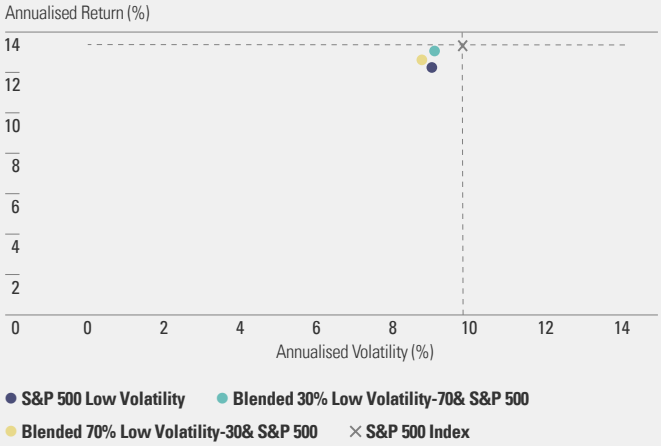
1 Year



3 Years



6 Years



Source: Morningstar Direct, State Street Global Advisors, as of 30 November 2018. 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.

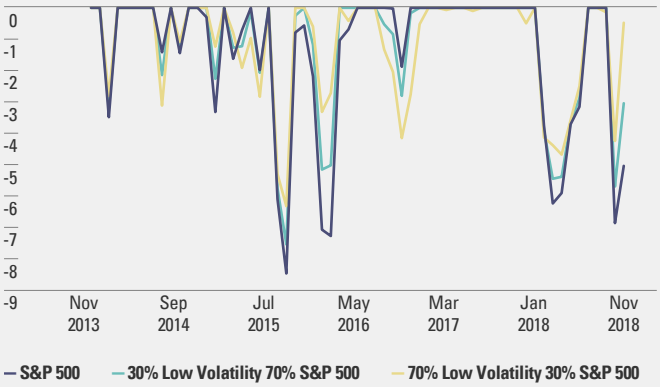
Figure 4 provides a case in point. The chart shows the total stock weight grouped by market beta in the 70% Low Volatility-30% S&P 500 blended portfolio and the 100% S&P 500 portfolio. Interestingly, the highest overweight is found in stocks with a 0.2–0.4 market beta, whereas the highest underweight is concentrated in stocks with a market beta of 1.0–1.2.

Figure 2: Return and Risk Performance Statistics of the Blended Portfolios from November 2012 to November 2018

	30% Low Volatility-70% S&P 500	70% Low Volatility-30% S&P 500	S&P 500
Annual Return (%)	13.14	12.70	13.40
Annual Volatility (%)	9.16	8.83	9.89
Sharpe Ratio	1.36	1.37	1.29
Information Ratio	-0.13	-0.15	—
Maximum Drawdown (%)	-7.5	-6.3	-8.5

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

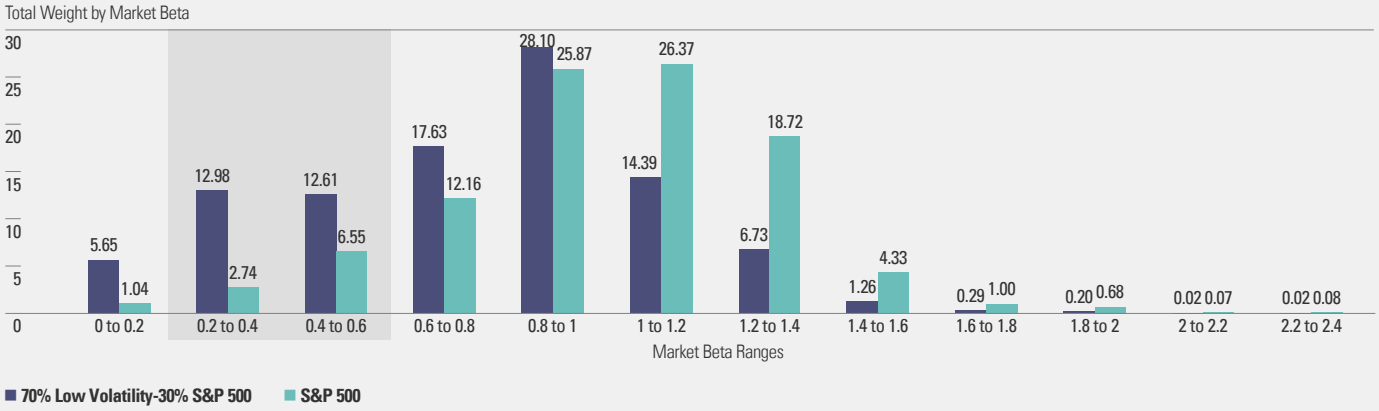


Source: Morningstar Direct, State Street Global Advisors, as of November 2018. Returns do not represent those of an index but were achieved by mathematically combining the actual performance data of two indices. Index returns reflect capital gains and losses, income, and the reinvestment of dividends.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

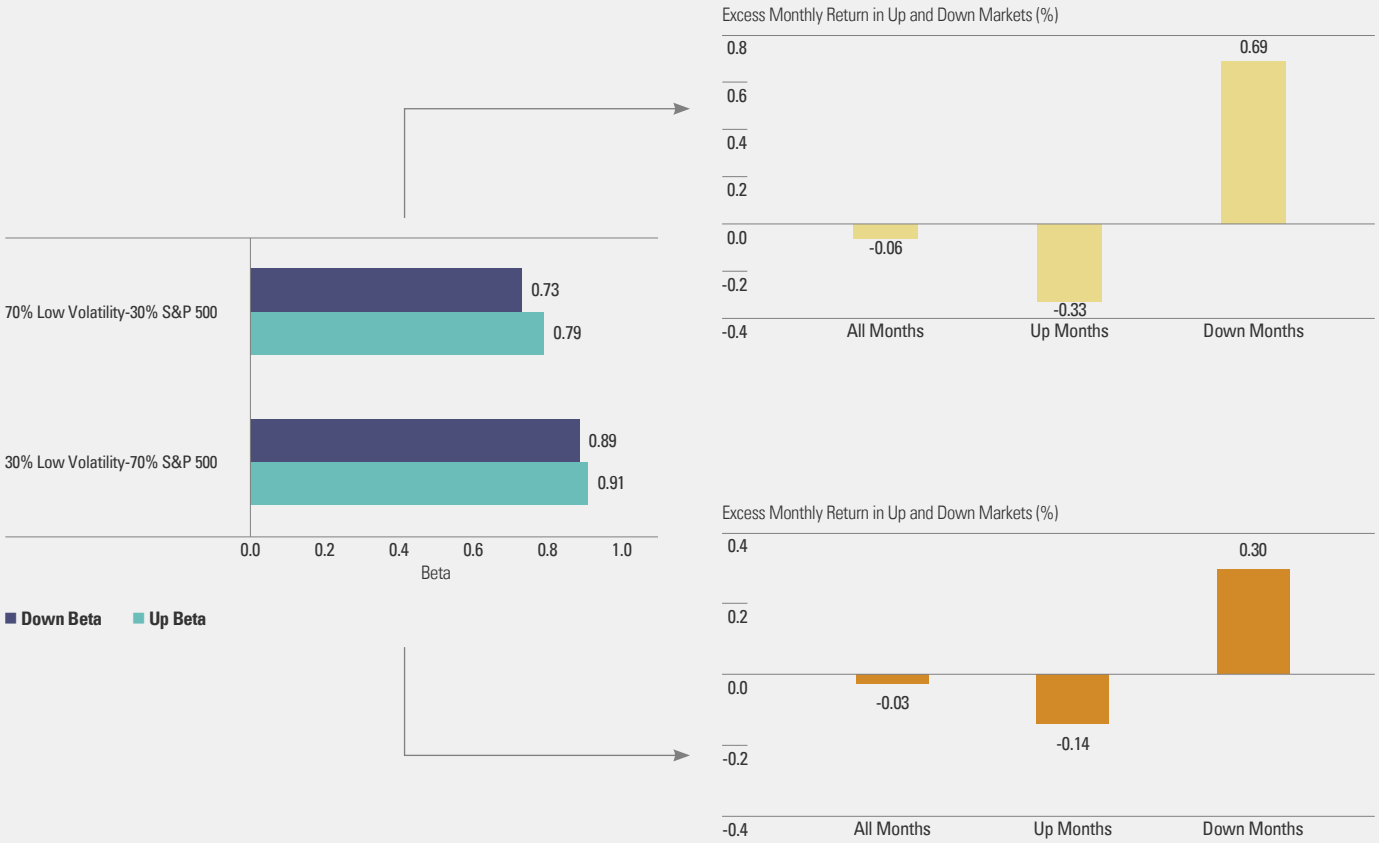
The objective of allocating low volatility strategies as part of investors' core allocation does not simply concern risk reduction. As shown in Figure 4, portfolios can be modified in such a way as to better reflect investors' risk appetite. For instance, if investors anticipate a strong recovery in 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.

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.

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.

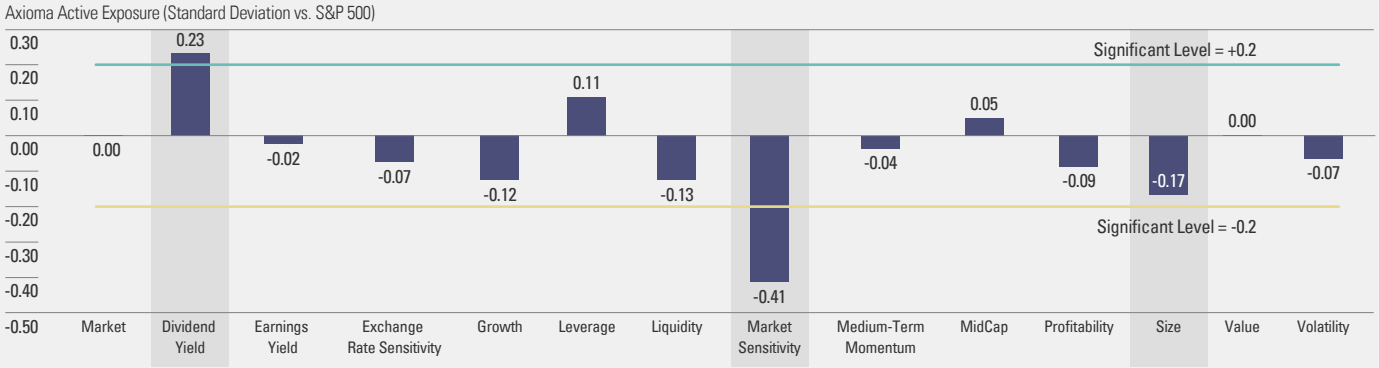
Case Study: Sources of Return and Risk of the 70% Low Volatility-30% S&P 500 Blended Portfolio

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



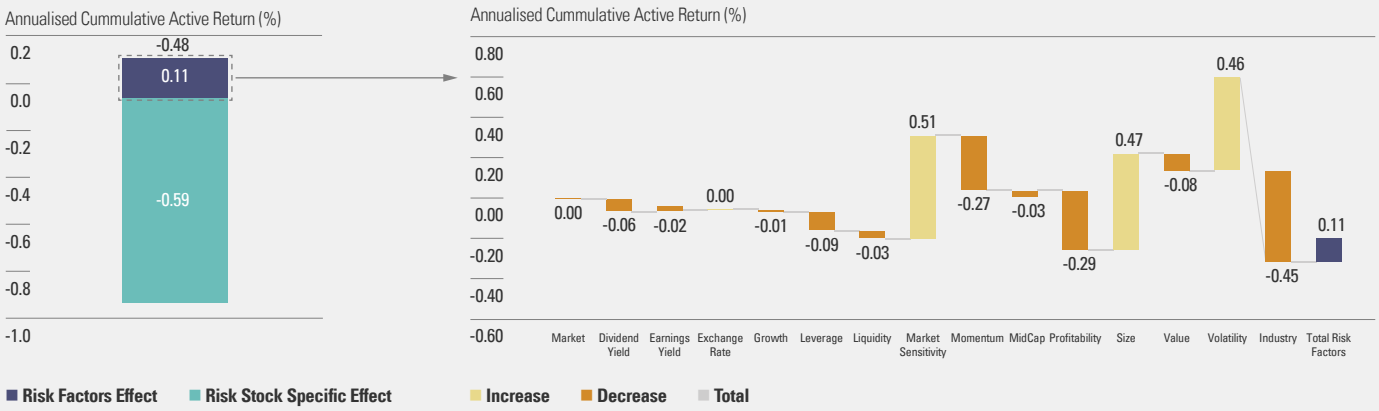
Source: State Street Global Advisors, FactSet, as of November 2018. Semi-annual active exposures shown cover the period from November 2012 to November 2018. The results shown represent current results generated by Axioma US Fundamental model, MH2.0. The results do not reflect actual trading and do not reflect the impact that material economic and market factors may have had on SSGA'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.

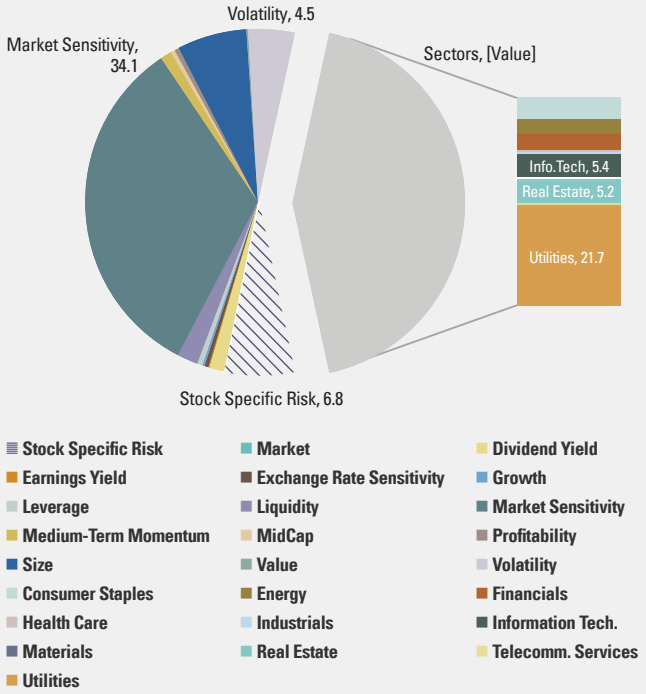
Between November 2012 and November 2018, the annualised excess return for the blended portfolio during the period was -0.48% p.a., even though the return derived from risk factors made a positive contribution of 0.11% p.a. As would be expected, lower market sensitivity and size made a sizeable contribution 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.

Figure 8: Attribution of Active Risk of the 70% Low Volatility-30% S&P 500 Blended Portfolio



Source: FactSet, as of 31 December 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

[1] Source: State Street Global Advisors, MSCI, as of 30 December 2018.

[2] Source: State Street Global Advisors, MSCI, as of December 2018.

[3] Source: State Street Global Advisors, Global Market Outlook 2019.

[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.

[5] Source: State Street Global Advisors, Is low volatility the right investment style for European equities? November 2018.

ssga.com | spdrs.com

Marketing communication. For professional investors only.

Important Information:

This material is general information only and does not take into account your individual objectives, financial situation or needs and you should consider whether it is appropriate for you. Investing involves risk including the risk of loss of principal.

Australia: State Street Global Advisors, Australia Services Limited (AFSL Number 274900, ABN 16 108 671 441) ("SSGA, ASL"). Registered office: Level 17, 420 George Street, Sydney, NSW 2000, Australia. T: 612 9240-7600. Web: ssga.com.

Belgium: State Street Global Advisors Belgium, Chaussée de La Hulpe 120, 1000 Brussels, Belgium. T: 32 2 663 2036, F: 32 2 672 2077. SSGA Belgium is a branch office of State Street Global Advisors Limited. State Street Global Advisors Limited is authorised and regulated by the Financial Conduct Authority in the United Kingdom.

France: State Street Global Advisors Ireland Limited, Paris branch is a branch of State Street Global Advisors Ireland Limited, registered in Ireland with company number 145221, authorised and regulated by the Central Bank of Ireland, and whose registered office is at 78 Sir John Rogerson's Quay, Dublin 2. State Street Global Advisors Ireland Limited, Paris Branch, is registered in France with company number RCS Nanterre 832 734 602 and whose office is at Immeuble Défense Plaza, 23-25 rue Delarivière-Lefoullon, 92064 Paris La Défense Cedex, France. T: (+33) 1 44 45 40 00. F: (+33) 1 44 45 41 92.

Germany: State Street Global Advisors GmbH, Brienner Strasse 59, D-80333 Munich. Authorised and regulated by the Bundesanstalt für Finanzdienstleistungsaufsicht ("BaFin"). Registered with the Register of Commerce Munich HRB 121381. T: +49 (0)89-55878-400. F: +49 (0)89-55878-440. ssga.com.

Hong Kong: State Street Global Advisors Asia Limited, 68/F, Two International Finance Centre, 8 Finance Street, Central, Hong Kong. T: +852 2103-0288. F: +852 2103-0200.

Ireland: State Street Global Advisors Ireland Limited is regulated by the Central Bank of Ireland. Registered office address 78 Sir John Rogerson's Quay, Dublin 2. Registered number 145221. T: +353 (0)1 776 3000. F: +353 (0)1 776 3300. Web: ssga.com.

Italy: State Street Global Advisors Limited, Milan Branch (Sede Secondaria di Milano) is a branch of State Street Global Advisors Limited, a company registered in the UK, authorised and regulated by the Financial Conduct Authority (FCA), with a capital of GBP 62,350,000, and whose registered office is at 20 Churchill Place, London E14 5HJ. State Street Global Advisors Limited, Milan Branch (Sede Secondaria di Milano), is registered in Italy with company number 06353340968 - R.E.A. 1887090 and VAT number 06353340968 and whose office is at Via dei Bossi, 4 - 20121 Milano, Italy. T: 39 02 32066 100. F: 39 02 32066 155.

Netherlands: State Street Global Advisors Netherlands, Apollo Building, 7th floor Herikerbergweg 29 1101 CN Amsterdam Amsterdam, Netherlands. T: 31 20 7181701. SSGA Netherlands is a branch office of State Street Global Advisors Limited. State Street Global Advisors Limited is authorised and regulated by the Financial Conduct Authority in the United Kingdom.

Singapore: State Street Global Advisors Singapore Limited, 168, Robinson Road, #33-01 Capital Tower, Singapore 068912 (Company Reg. No: 200002719D, regulated by the Monetary Authority of Singapore). T: +65 6826-7555. F: +65 6826-7501.

Switzerland: State Street Global Advisors AG, Beethovenstr. 19, CH-8027 Zurich. Authorised and regulated by the Eidgenössische Finanzmarktaufsicht ("FINMA"). Registered with the Register of Commerce Zurich CHE-105.078.458. T: +41 (0)44 245 70 00. F: +41 (0)44 245 70 16. ssga.com.

United Kingdom: State Street Global Advisors Limited. Authorised and regulated by the Financial Conduct Authority. Registered in England. Registered No. 2509928. VAT No. 5776591 81. Registered office: 20 Churchill Place, Canary Wharf, London, E14 5HJ. T: 020 3395 6000. F: 020 3395 6350.

A Smart Beta strategy does not seek to replicate the performance of a specified cap-weighted index and as such may underperform such an index. The factors to which a Smart Beta strategy seeks to deliver exposure may themselves undergo cyclical performance. As such, a Smart Beta strategy may underperform the market or other Smart Beta strategies exposed to similar or other targeted factors. In fact, we believe that factor premia accrue over the long term (5–10 years), and investors must keep that long time horizon in mind when investing.

Bonds generally present less short-term risk and volatility than stocks, but contain interest rate risk (as interest rates raise, bond prices usually fall); issuer default risk; issuer credit risk; liquidity risk; and inflation risk. These effects are usually pronounced for longer-term securities. Any fixed income security sold or redeemed prior to maturity may be subject to a substantial gain or loss.

Equity securities are volatile and can decline significantly in response to broad market and economic conditions.

CFA® and Chartered Financial Analyst® are trademarks of the CFA Institute.

The trademarks and service marks referenced herein are the property of their respective owners. Third party data providers make no warranties or representations of any kind relating to the accuracy, completeness or timeliness of the data and have no liability for damages of any kind relating to the use of such data.

The information contained in this communication is not a research recommendation or 'investment research' and is classified as a 'Marketing Communication' in accordance with the Markets in Financial Instruments Directive (2014/65/EU) or applicable Swiss regulation. This means that this marketing communication (a) has not been prepared in accordance with legal requirements designed to promote the independence of investment research (b) is not subject to any prohibition on dealing ahead of the dissemination of investment research.

Investing involves risk including the risk of loss of principal.

The whole or any part of this work may not be reproduced, copied or transmitted or any of its contents disclosed to third parties without State Street Global Advisors' express written consent.

The information provided does not constitute investment advice as such term is defined under the Markets in Financial Instruments Directive (2014/65/EU) or applicable Swiss regulation and it should not be relied on as such. It should not be considered a solicitation to buy or an offer to sell any investment. It does not take into account any investor's or potential investor's particular investment objectives, strategies, tax status, risk appetite or investment horizon. If you require investment advice you should consult your tax and financial or other professional advisor. All material has been obtained from sources believed to be reliable. There is no representation or warranty as to the accuracy of the information and State Street shall have no liability for decisions based on such information.

This document contains certain statements that may be deemed forward looking statements. Please note that any such statements are not guarantees of any future performance and actual results or developments may differ materially from those projected.

This communication is directed at professional clients (this includes eligible counterparties as defined by the Appropriate EU Regulator or Swiss Regulator) who are deemed both knowledgeable and experienced in matters relating to investments. The products and services to which this communication relates are only available to such persons and persons of any other description (including retail clients) should not rely on this communication.

All the index performance results referred to are provided exclusively for comparison purposes only. It should not be assumed that they represent the performance of any particular investment.

Past Performance is not a guarantee of future results.

ID15264-2362687.3.1.GBL.INST 0119 Exp. Date: 31/01/2020