

SSGA Long-Term Asset Class Forecasts

December 31, 2018 | Market Commentary

Summary

Fixed Income	Given the current expected path of monetary policy, our long-term US cash return reflects a slight premium over our inflation projection. Though the Federal Reserve (Fed) increased policy rates by 25 basis points (bps) in December, the slightly clouded outlook for global growth and inflation led yields across the globe to plummet, with the 2y10y US Treasury spreads reaching 21 bps towards the end of 2018. Our longer-term return expectations for US government bonds, US investment-grade bonds and US corporate bonds broadly remain unchanged at 3.0%, 3.7% and 4.5%, respectively, while our near-term expectations increased to 2.4%, 2.8% and 3.4%, respectively. Our long-term and short-term return forecasts for US high-yield bonds increased to reach 6.4% and 6.5%, respectively. Our near-term and intermediate-term return forecasts for US Treasury Inflation-Protected Bonds (TIPS) also increased.
Equities	Our long-term return forecasts for both US large-cap and developed market equities outside of the US increased to 6.7% and 7.0%, respectively. Our long-term return forecast for emerging markets has improved over the past quarter, with a forecast return of 10.3%, a 3.3% premium over developed markets. On a near-term horizon, our equity forecasts have increased from the previous quarter due to a slight change in methodology, which now considers an improved combination of quantitative model scores and intermediate-term forecasts. We are forecasting near-term returns of 6.5% for large-cap US equities, 6.6% for developed market equities outside the US and 9.4% for emerging market equities.
Alternative	We continue to expect that over the longer term private equity will provide a modest illiquidity premium coupled with a higher long-term risk level comparable to that of small-cap equities, leading to a 7.7% return forecast. Over the shorter term, our outlook for private equity has improved from the previous quarter, attributable to an increase in our US small-cap return expectation. Our short-term forecast for global real estate investment trusts (REITs) has deteriorated slightly from last quarter, and remains lower than the global equities forecast whereas our short-term forecast for US REITs has improved slightly. Our long-term return forecast for commodities has moderated to 5.5%, while our short-term forecast decreased by a larger amount, to 3.3%, due to a plunge in quantitative model scores.

There can be no assurance that developments will transpire as forecasted and that the estimates are accurate.

Our longer-term asset class forecasts are forward-looking estimates of total returns generated through combined assessment of current valuation measures, economic growth, inflation prospects, yield conditions as well as historical risk premia. We also include shorter-term return forecasts that incorporate output from our multi-factor tactical asset allocation models. Outlined below is the process we use to arrive at our return forecasts for the major asset classes.

Inflation

The starting point for our nominal asset class return projections is an inflation forecast. We incorporate both estimates of long-term inflation and the inflation expectations implied in current bond yields. US Treasury Inflation-Protected Securities (TIPS) provide a market observation of the real yields that are available to investors. The difference between the nominal bond yield and the real bond yield at longer maturities furnishes a marketplace assessment of long-term inflation expectations.

US core personal consumption expenditure ended 2018 with a year-over-year gain of 1.9% falling slightly short of the central bank target of 2% even as the US core consumer price index recorded a year-over-year gain of 2.2%. Softer economic data and falling crude oil prices resulted in the decline. In the US, the 10-year breakeven rate decreased to end 2018 at 1.73% compared to a yield of 2.14% at the end of the third quarter. The 41 bps quarterly decline in breakeven yields coincided with a 7 bps quarterly increase in real yields

Figure 1: Forecasted Long-Term Annualised Return (%)



Source: State Street Global Advisors (SSGA) Investment Solutions Group as of 12/31/2018.

Forecasted returns are based upon estimates and reflect subjective judgements and assumptions. These results were achieved by means of a mathematical formula and do not reflect the effect of unforeseen economic and market factors on decision-making. The forecasted returns are not necessarily indicative of future performance, which could differ substantially.

to 0.98% and a 36 bps drop in nominal 10-year yields to 2.69% for the quarter. We believe that such headwinds are temporary and that market-implied expectations will revive. Hence our current US long-term forecast for inflation remains in line with the central bank target of 2%.

Cash

Our long-term forecasts for global cash returns incorporate what we view as the normal real return that investors could earn over time. Historically, cash investors have earned a modest premium over inflation. We also take current and forward-looking global central bank policy rates into consideration in formulating our cash forecast. Our long-term cash return forecast is 2.8% for the US (unchanged from the third quarter of 2018) and 2.2% (up 20bps from the third quarter) for the UK, providing a slight premium over inflation. Current monetary policy priorities in many non-US developed countries are dictating that cash returns stay below expected inflation rates. To this end, our long-term cash return for the eurozone is 1.5%, reflecting a discount on our long-term inflation projections.

We expect that short-term interest rates will normalise over time. Our US, UK and eurozone short-term cash forecasts have increased by 10bps, 20bps, and 10bps, respectively from the previous quarter, as the central banks continue to progress from their long-standing accommodative stance toward monetary policy normalisation.

Bonds

Our return forecasts for fixed income derive from current yield conditions together with expectations as to how real and nominal yield curves will evolve relative to historical precedent. We then build our benchmark forecasts from a discrete analysis of relevant maturities. For corporate bonds, we also analyse credit spreads and their term structures, with separate assessments of investment-grade and high-yield bonds.

Although the Fed increased the US policy rate by 25 bps in December, there was downward pressure on short-term yields, due to disappointing data and bouts of equity market volatility. The year ended with the spread between 10-year and two-year Treasuries at 21 bps. With our near-term policy expectations of two more rate hikes in 2019, our near-term expected US Treasury yield curve continues to incorporate modest flattening. Our updated longer-term return expectations for fixed income have changed very moderately. At shorter horizons, we anticipate higher returns in US government bonds by 30 bps.

The return forecast for eurozone government bonds is comprised of German government bonds and Italian government bonds. While our long-term return forecast for eurozone government bonds has slightly decreased, by 20 bps from the previous quarter to 2.3%, our short-term return forecast for eurozone government bonds has decreased by 70 bps, to 0.6%. This is because our near-term expectations of the Italian government yield curve decreased as yields plummeted across the globe. While the long-term return forecast for euro corporate bonds remains unchanged over the previous quarter, at 2.8%, the short horizon return forecast has increased by 40 bps. The return forecasts for euro corporate bonds and euro

high-yield bonds utilise current and expected German yield curves with due consideration of separate spread curves. Hence, the higher decline in the near-term expected German government yield curves across maturities during the fourth quarter of 2018 contributed to the price return, and an increase in euro corporate spreads across maturities added to the higher income return for euro corporate bonds over the previous quarter.

Spreads on US high-yield bonds increased by 182 bps over the fourth quarter, leading to a yield of 7.95%.¹ Similarly, high-yield spreads in the eurozone increased by 149 bps, taking the yield on the BofA Merrill Lynch Euro High Yield Index to 4.73%.² Our near-term expected spreads have moderately widened over the past quarter in the five-to-nine-years maturity range. This has resulted in an increased carry return component and eventually an increase of 190 bps in the near-term US high-yield forecasted return, providing an expected return of 6.5%.

In the near term, our inflation expectations for the US remain at 2.0% and our near-term and intermediate-term return forecasts for US TIPS have increased by 30 bps and 20 bps, to 1.6% and 2.2%, respectively. Over the longest time frames, we are modeling increases in real yields, but we expect that inflation protection will provide enough income to produce a long-term return on US TIPS of 3.2%.

Equities

The foundation for our long-term equity market forecasts are estimates of real return potential, derived from current dividend yields, forecasted real earnings growth rates and potential for expansion or contraction of valuation multiples. Our enhanced forecasting method now incorporates long-run average estimates of potential economic growth based on forecasted labour, capital and productivity inputs to estimate real earnings growth. Across both developed and emerging markets, variation in labour, capital and productivity levels results in region-specific differences in our estimates for real earnings growth, allowing for more region-appropriate forecasts for both developed and emerging market equities. Our return forecasts for emerging market equities and emerging market Europe, Middle East & Africa (EMEA) equities also include forecasts for Saudi Arabia equity, Qatar equity and UAE equity.

Given the current dividend yield on the S&P 500 of 2.32%³ and an anticipated real earnings growth rate of roughly 2.40%, we forecast a real return of 4.70% for large-cap US equities. Combining this with our inflation forecast, we estimate long-term average equity returns of 6.70%.

The trailing five-year price-to-earnings ratio, defined as price divided by the average of five years of earnings, for the S&P 500 declined slightly from last quarter to 21.46,⁴ a level that is somewhat elevated though not extreme relative to historical precedent. We are therefore not factoring in any expansion or contraction of this multiple over the long term.

Over the long term, we expect US mid-cap and small-cap markets each to earn a modest premium of 0.25% to 0.50%, respectively, over large-cap stocks. Non-US small-caps and emerging markets should both provide higher earnings growth rates than developed large-cap markets and we therefore project that these asset classes will earn higher returns. It is important to note that we are not incorporating currency fluctuations as part of our forecasts. Over the long term, the effects of short-term currency fluctuations should cancel out, producing a limited impact on returns. Furthermore, for our forecasts to be useful globally, we want to avoid a US-centric bias.

On a one-year horizon, our forecast for large-cap US equities increased by 150 bps and our forecast for global developed equities increased by 190 bps from last quarter due to a slight change in methodology, as our short-term forecasts now utilise an improved combination of the tactical quantitative alpha models and intermediate-term horizon forecasts. We are forecasting one-year returns of 6.5% for large-cap US equities and 6.8% for developed equity markets outside the US.

Smart Beta

The four advanced beta factors begin with the MSCI World universe and are then reweighted toward selected factors. These factors include value, quality, low volatility and small size. Empirically, exposure to valuation, quality, low volatility and small size have generated positive excess returns over the cap-weighted index. We continue to expect there will be a premium to owning these factors over the long term.

Over a one- to three-year forecast horizon, we look to see how cheap each factor is relative to its own history. Specifically, we focus on book-to-price spreads for each factor and relate these to their subsequent returns. We find that valuation ratios are useful for forecasting market returns. While different smart beta portfolios have different characteristics such as tracking error, we calculate forecasts for our internal optimised portfolios. Using valuation ratio relationships, we forecast a short-term return premium of 1.8% for the value portfolio, 1.2% for the quality portfolio, 1.0% for the low volatility portfolio, and 1.7% for the small size portfolio.

Private Equity

Our long-term forecast for private equity is based upon past performance patterns of private equity funds relative to listed equity markets and our extrapolation of these performance patterns on a forward basis. According to several academic studies^{5, 6} the annual rate of return of private equity funds over the long term appears to be largely in line with that of listed equities, with outperformance relative to listed equities before fees, but relative underperformance after fees. Some more recent academic

studies⁷ find better results, especially for buyout funds. Before fees, we believe that an average private equity fund can outperform small-cap listed equities by perhaps 0.5% over the long run. We also consider additional factors, including financial conditions and capital availability. Because private equity firms have enjoyed available and affordable capital, and have recently realised record-high valuation multiples, our return forecast continues to reflect a more competitive return environment. Since private equity funds tend to use ample leverage and are often much less liquid than publicly traded investments, we rate the long-term risk level of private equity as higher than that of small-cap equities.

REITs

Real estate investment trusts (REITs) have historically earned returns between bonds and stocks due to their stable income streams and potential for capital appreciation. Our long-term forecasts for US and global REITs are 5.9% and 5.6%, respectively, and are reflective of the current rising yield environment. In the shorter term, the outlook for US REITs from our expected return models has improved, with returns of 3.9%, mainly due to improvement in our quantitative tactical model scores and increase in US government bond forecast. However, our near-term forecast for global REITs has come down slightly, to 2.8%, primarily due to decreased expectations for global inflation. While the appeal of their income features seems likely to foster some continued support, the asset class may face headwinds from extension of the current rising interest rate environment.

Commodities

Our long-term commodity forecast is based on the level of world GDP, as a proxy for consumption demand, as well as on our inflation outlook. Additional factors affecting the returns to a commodities investor include how commodities are held (e.g., physically, synthetically or via futures) and the various construction methodologies of different commodity benchmarks. Futures-based investors have the potential to earn a premium by providing liquidity and capital to producers seeking to hedge market risk. This premium is greatest when the need for hedging is high, driving commodities to trade in backwardation, with future prices that are lower than spot prices. When spot prices are lower, however, the market is said to be in contango, and futures investors may realise a negative premium. Our long-term return forecast for commodities is 5.5%.

^{1,2,3,4} FactSet, December 31, 2018.

⁵ Phalippou, Ludovic and Olivier Gottschalg, 2009, "the Performance of Private Equity Funds". *Review of Financial Studies*, vol. 22, no 4 (April) : 1747-1776.

⁶ Kaplan, Steven N, and Antoinette Schoar. 2005. "Private equity Performance: Returns, Persistence and Capital Flows." *Journal of Finance*, vol. 60, no 4 (August): 1791-1823.

⁷ Robert Harris, Tim Jenkinson, and Steven Kaplan. 2014. "Private Equity Performance: What Do We Know?" *Journal of Finance*, vol. 69, no 5: 1851-1882.

Figure 2: SSGA Tactical/Strategic Asset Allocation Returns Forecasts

As of December 2018

Asset Class	Short-term 1 Year Return (%)	Intermediate-term 3-5 Years Return (%)	Long-term 10+ Years Return (%)	Long-term Risk (Std Dev) (%)
Global Equities (ACWI)	7.0	7.3	7.2	14.4
Global Equities (ACWI) ex US	7.5	7.9	7.9	15.3
Global Developed (World)	6.6	6.9	6.8	14.4
Global Developed ex US	6.8	7.0	7.0	15.2
Global Developed ex US Small Cap	7.5	7.8	7.8	16.0
US Large Cap	6.5	6.8	6.7	14.9
US Mid Cap	5.9	7.0	7.0	17.3
US Small Cap	4.9	7.3	7.2	18.8
Europe	7.0	7.5	7.5	15.8
Eurozone	6.3	7.1	7.2	19.6
Developed Pacific	6.1	6.0	5.9	17.9
Emerging Markets (EM)	9.4	10.5	10.3	21.2
EM Asia	9.8	10.7	10.5	22.3
EM EMEA	9.1	10.8	10.3	20.3
EM LatAm	7.5	8.7	8.8	28.1
Global Equal Weighted	8.3	8.6	7.3	15.3
Global Value Tilted	8.4	8.7	7.2	14.7
Global Minimum Variance	7.6	7.9	7.4	10.7
Global Quality Tilted	7.8	8.1	7.3	13.6
Global Government Bonds	0.9	0.9	1.9	3.7
Global Corporate Bonds	2.5	2.2	3.9	7.3
Non-US Government Bonds	0.4	0.3	1.5	3.6
Non-US Corporate Bonds	1.4	1.6	3.0	3.7
US Government Bonds	2.4	2.4	3.0	4.9
US Investment-Grade Bond	2.8	3.0	3.7	4.3
US High-Yield Bonds	6.5	6.2	6.4	8.7
US TIPS	1.6	2.2	3.2	6.6
US Long Treasury STRIPS	2.9	1.8	3.0	24.3
Euro Government Bonds	0.6	0.7	2.3	4.6
Euro Corporate Bonds	0.5	1.0	2.8	3.8
Euro High-Yield Bonds	3.1	3.4	5.0	12.6
Japanese Government Bonds	-0.2	-0.5	0.3	4.0
Japanese Corporate Bonds	0.9	0.7	1.1	2.1
UK Government Bonds	0.5	0.4	2.0	7.3
UK Corporate Bonds	2.2	2.3	3.7	6.9
Emerging Markets Bonds	4.6	5.4	6.6	13.6
Global Real Estate (REITs)	2.8	5.2	5.6	18.1
Commodities	3.3	5.0	5.5	15.2
Hedge Funds	5.9	6.2	6.3	5.7
Private Equity	5.9	7.8	7.7	24.9
US Cash	2.5	2.7	2.8	1.0
UK Cash	1.0	1.8	2.2	1.2
Eurozone Cash	-0.2	0.6	1.5	1.1

The forecasted returns are annual arithmetic averages based on SSGA's Investment Solutions Group December 31, 2018 forecasted returns and long-term standard deviations. The forecasted performance data is reported on a gross of fees basis. Additional fees, such as the advisory fee, would reduce the return. For example, if an annualised gross return of 10% was achieved over a five-year period and a management fee of 1% per year was charged and deducted annually, then the resulting return would be reduced from 61% to 53%. The performance includes the reinvestment of dividends and other corporate earnings and is calculated in the local (or regional) currency presented. It does not take into consideration currency effects. The forecasted performance is not necessarily indicative of future performance, which could differ substantially.

Glossary

Basis Point (bps) A unit of measure for interest rates, investment performance, pricing of investment services and other percentages in finance. One basis point is equal to one-hundredth of 1 percent, or 0.01%.

Bloomberg Barclays U.S. Corporate High Yield Index A fixed-income benchmark of US dollar-denominated, high-yield and fixed-rate corporate bonds. Securities are classified as high yield if the middle rating of Moody's, Fitch and S&P is Ba1/BB+/BB+ or below. Bonds from issuers with an emerging markets country of risk, based on Barclays' emerging markets country definition, are excluded.

Book to Price (B/P) Ratio A valuation metric that takes the ratio of the book value of a company per share to its share price.

Commodities A generic, largely unprocessed, good that can be processed and resold. Commodities traded in the financial markets for immediate or future delivery include grains, metals, and minerals.

Credit Spreads The spread between Treasury securities and non-Treasury securities that are identical in all respects except for quality rating.

Dividend Equities and Dividend Yield Equity securities that pay dividends. A dividend is a distribution of a portion of a company's earnings, decided by the board of directors, to a class of its shareholders. Dividends can be issued as cash payments, as shares of stock, or other property. Equity, also known as stock, is a type of security that signifies ownership in a corporation and represents a claim on part of the corporation's assets and earnings. The dividend yield is the ratio of the dividend paid per share of issued equity over the share price.

Inflation An overall increase in the price of an economy's goods and services during a given period, translating to a loss in purchasing power per unit of currency. Inflation generally occurs when growth of the money supply outpaces growth of the economy. Central banks attempt to limit inflation, and avoid deflation, in order to keep the economy running smoothly.

MSCI World Index The MSCI World Index is a free-float weighted equity index. It includes about 1,600 stocks from developed world markets, and does not include emerging markets.

Nominal Bond Yield The annual income that an investor receives from a bond divided by the par value of the security. The result, stated as a percentage, is the same as the rate of interest the security pays.

Price-to-Earnings Multiple, or P/E Ratio A valuation metric that uses the ratio of the company's current stock price versus its earnings per share.

Private Equity An umbrella term for large amounts of money raised directly from accredited individuals and institutions and pooled in a fund that invests in a range of business ventures.

Real Interest Rates, or Real Yields An interest rate that takes into consideration the actual or expected inflation rate, which is the actual amount of yield an investor receives. The real rate is the calculation of the "nominal" interest rate minus the inflation rate as follows: Real Interest Rate = Nominal Interest Rate — Inflation.

REITs (Real Estate Investment Trusts) Publicly traded companies that pool investors' capital to invest in a variety of real estate ventures, such as apartment and office buildings, shopping centers, medical facilities, industrial buildings, and hotels.

Tactical asset allocation models Illustrate a dynamic approach to asset management that emphasises exposure to asset classes that are designed to enhance returns or control drawdowns.

Smart Beta A rules-based investment strategy that seeks to capture specific factors in the marketplace that active managers have historically relied on to outperform. These include value, size, low volatility, quality and momentum.

US 3 Month Libor (Cash) Libor, or the London Interbank Offered Rate, is equivalent to the federal funds rate, or the interest rate one bank charges another for a loan. It is used as a reference figure for corporate financial transactions and, increasingly, for consumer loans as well.

Yield Curve (e.g., US Treasury Curve) A graph or line that plots the interest rates or yields of bonds with similar credit quality but different durations, typically from shortest to longest duration. When the yield curve is said to be "flat," it means the difference in yields between bonds with shorter and longer durations is relatively narrow. When the yield curve is said to be "steep," it means the difference in yields between bonds with shorter and longer durations is relatively wide.

ssga.com

Marketing communication.**State Street Global Advisors Worldwide Entities**

Abu Dhabi: State Street Global Advisors Limited, Middle East Branch, 42801, 28, Al Khatem Tower, Abu Dhabi Global Market Square, Al Mayah Island, Abu Dhabi, United Arab Emirates. T: +971 2 245 9000 **Australia:** State Street Global Advisors, Australia, Limited (ABN 42 003 914 225) is the holder of an Australian Financial Services Licence (AFSL Number 238276). Registered office: Level 17, 420 George Street, Sydney, NSW 2000, Australia. T: +612 9240 7600. F: +612 9240 7611.

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.

Canada: State Street Global Advisors, Ltd., 770 Sherbrooke Street West, Suite 1200 Montreal, Quebec, H3A 1G1, T: +514 282 2400 and 30 Adelaide Street East Suite 500, Toronto, Ontario M5C 3G6. T: +647 775 5900. **Dubai:** State Street Global Advisors Limited, DIFC Branch, Central Park Towers, Suite 15 -38 (15th floor), P.O Box 26838, Dubai International Financial Centre (DIFC), Dubai, United Arab Emirates. Regulated by the Dubai Financial Services Authority (DFSA). T: +971 (0)4-4372800

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, Briener 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. **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. **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. **Japan:** State Street Global Advisors (Japan) Co., Ltd., Toranomon Hills Mori Tower 25F 1-23-1 Toranomon, Minato-ku, Tokyo 105-6325 Japan, T: +81-3-4530-7380 Financial Instruments Business Operator, Kanto Local Financial Bureau (Kinsho #345), Membership: Japan Investment Advisers Association, The Investment Trust Association, Japan, Japan Securities Dealers' Association. **Netherlands:** State Street Global Advisors Netherlands, Apollo Building, 7th floor Herikerbergweg 29 1101 CN 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.

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. **United States:** State Street Global Advisors, One Iron Street, Boston MA 02210. T: +1 617 786 3000.

This document contains certain statements that may be deemed to be forward-looking statements. All statements, other than historical facts, contained within this article that address activities, events or developments that SSGA expects, believes or anticipates will or may occur in the future are forward-looking statements. These statements

are based on certain assumptions and analyses made by SSGA in light of its experience and perception of historical trends, current conditions, expected future developments and other factors it believes are appropriate in the circumstances, many of which are detailed herein. Such statements are subject to a number of assumptions, risks, uncertainties, many of which are beyond SSGA's control. Readers are cautioned that any such statements are not guarantees of any future performance and that actual results or developments may differ materially from those projected in the forward-looking statements.

The views expressed in this commentary are the views of the SSGA Investment Solutions Group through the period ended December 31, 2018 and are subject to change based on market and other conditions. The opinions expressed may differ from those of other SSGA investment groups that use different investment philosophies.

Equity securities may fluctuate in value in response to the activities of individual companies and general market and economic conditions.

The value of the debt securities may increase or decrease as a result of the following: market fluctuations, increases in interest rates, inability of issuers to repay principal and interest or illiquidity in the debt securities markets; the risk of low rates of return due to reinvestment of securities during periods of falling interest rates or repayment by issuers with higher coupon or interest rates; and/or the risk of low income due to falling interest rates. To the extent that interest rates rise, certain underlying obligations may be paid off substantially slower than originally anticipated and the value of those securities may fall sharply. This may result in a reduction in income from debt securities income.

Increase in real interest rates can cause the price of inflation-protected debt securities to decrease. Interest payments on inflation-protected debt securities can be unpredictable.

Investing in REITs involves certain distinct risks in addition to those risks associated with investing in the real estate industry in general. Equity REITs may be affected by changes in the value of the underlying property owned by the REITs, while mortgage REITs may be affected by the quality of credit extended. REITs are subject to heavy cash flow dependency, default by borrowers and self-liquidation. REITs, especially mortgage REITs, are also subject to interest rate risk (i.e., as interest rates rise, the value of the REIT may decline).

Investing in commodities entails significant risk and is not appropriate for all investors. Commodities investing entail significant risk as commodity prices can be extremely volatile due to wide range of factors. A few such factors include overall market movements, real or perceived inflationary trends, commodity index volatility, international, economic and political changes, change in interest and currency exchange rates.

The information we provide does not constitute investment advice and it should not be relied on as such. It should not be considered a solicitation to buy or an offer to sell a security. It does not take into account any investor's particular investment objectives, strategies, tax status or investment horizon. We encourage you to consult your tax or financial advisor.

Past performance is no guarantee of future results. Investing involves risk including the risk of loss of principal. Diversification does not ensure a profit or guarantee against loss.

Asset Allocation is a method of diversification which positions assets among major investment categories. Asset Allocation may be used in an effort to manage risk and enhance returns. It does not, however, guarantee a profit or protect against loss.

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 SSGA's express written consent.

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.

All material has been obtained from sources believed to be reliable, but its accuracy is not guaranteed. There is no representation or warranty as to the current accuracy of, nor liability for, decisions based on such information. Past performance is no guarantee of future results.