

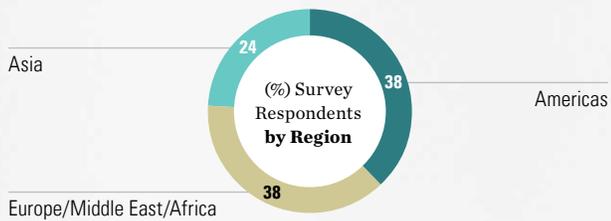
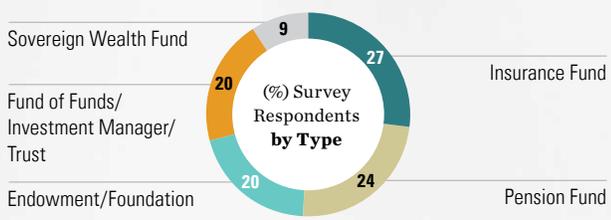
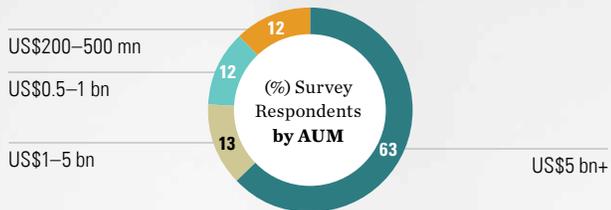
**STATE STREET
GLOBAL ADVISORS.**

BUILDING BRIDGES

Are investors ready for lower growth for longer?
How are they working to bridge the performance gap?

A Research Survey Commissioned by State Street Global Advisors.

FT Remark
Research from the Financial Times Group



About this study: In the second half of 2015, FT Remark, in association with State Street Global Advisors (SSGA), surveyed senior executives with asset allocation responsibilities at 400 large institutional investors.

The survey focused on the investors' objectives, their approach to asset allocation and their framework for measuring success. Institutions reporting a shortfall in performance against long-term targets were asked how they expected to close the performance gap. Interviewees were also asked about their views on active management, index investing and smart beta, as well as their attitudes towards factor and objective-based investment strategies.

The survey included a combination of qualitative and quantitative questions and all interviews were conducted by phone. The results were analyzed and collated by FT Remark and all responses are anonymized and presented in aggregate.

The survey participants included a broad range of institutional investors from around the globe.

Source: FT Remark, 31 December 2015. FT Remark and SSGA are not affiliated.



4 INTRODUCTION

6 KEY FINDINGS

8 MIND THE GAP

8 Defining Objectives

10 Return Expectations Versus Reality

10 New Approaches Required

12 BUILDING BRIDGES

12 How to Get There?

13 Differences in Approach

13 Addressing Performance

14 Finding the Right Solution

14 Passive Funding Active and Smart Beta

15 Increasing Smart Beta and Active

15 Hitting the Mark

16 BARRIERS TO CHANGE

16 Understanding Return Profiles

18 Other Barriers

21 THE WAY FORWARD

21 Clear Need for New Approaches

21 A Shift of Focus

TODAY'S LOW-RETURN WORLD BRINGS NEW CHALLENGES FOR INVESTORS

To achieve their investment objectives, from portfolio growth to matching liabilities, investors need to work their asset allocation harder, and smarter, than ever before.

For increasing numbers of investors, this means challenging traditional strategic asset allocation models. There's a greater need to consider risk and a stronger focus on the actual return drivers of their chosen asset classes.

But while alternative models — such as factor-based, liability-driven or other specialized approaches — provide potential pathways, obstacles to putting them into practice can arise.

Our survey helps to understand the views of global investment professionals about their asset allocation approach and how they monitor their progress. Given the persistent low-return environment and the potential for organizations to experience performance shortfalls, we asked investors how they are planning to overcome any gap between stated objectives and realized performance.

We also asked investors for their views on the tools available to them, from indexing to active management, as well as the relatively newer smart beta strategies. Perspectives around factor-based asset allocation and its potential to challenge and/or complement existing models were also sought.

A black and white photograph of two men in business attire. The man on the left is wearing glasses and a striped tie, looking towards the right. The man on the right is looking down at a laptop screen. The background is a bright, out-of-focus office setting.

IN THIS STUDY, WE EXPLORE

Current return expectations and investors' confidence in their capacity to attain portfolio growth objectives over the medium to longer term.

The adoption of new asset allocation strategies to meet performance gaps amid today's challenging markets.

The obstacles that may be constraining the uptake of potentially helpful new approaches, such as factor and objective-based investing.

KEY FINDINGS

The current lower-for-longer return environment means investors' return expectations may be more difficult to achieve with traditional investment models. New approaches are needed.

While investors' long-term return expectations for individual asset classes appear relatively high, many respondents appear less confident in their ability to actually meet return targets.

Nearly a quarter of respondents said that their long-term return expectations are not currently being met, with a mere 13% saying that, on average, their asset classes were performing above expectations. Of those experiencing returns below their long-term expectations, many expect this underperformance to continue.

For investors experiencing a performance shortfall, increases in active investing, objective-based investing or allocations to alternatives are the preferred approaches.

In the quest for portfolio growth, higher allocations to alternative asset classes were sought by 22% of respondents. The imperative to hit return targets could be driving investors to seek out more adventurous investments as the pain of the global financial crisis recedes with time.

Of those seeking to address a shortfall, 27% indicated a preference to increase their allocation to active investing and the same proportion sought redress in objective-based investing. Allocations to alternative asset, active or smart beta approaches were typically funded from passive portfolios.

Traditional asset allocation approaches are still dominant, but investors are looking for new perspectives. Factor-based approaches such as smart beta are gaining traction.

While 41% of respondents indicated that traditional asset class distinction remains the single most important way of approaching asset exposures, alternative classifications including factor- and objective-based are favored by 30% and 25%, respectively.

Among those investors seeking to address performance gaps specifically, only 11% indicated that smart beta was the most important part of their revised asset allocation approach, but 38% included it among other approaches used. Significantly, three-quarters of those respondents who have introduced smart beta approaches found moderate to significant improvement in portfolio performance.

Although a willingness to uncover new perspectives is evident, investors still face significant barriers to the adoption of new approaches.

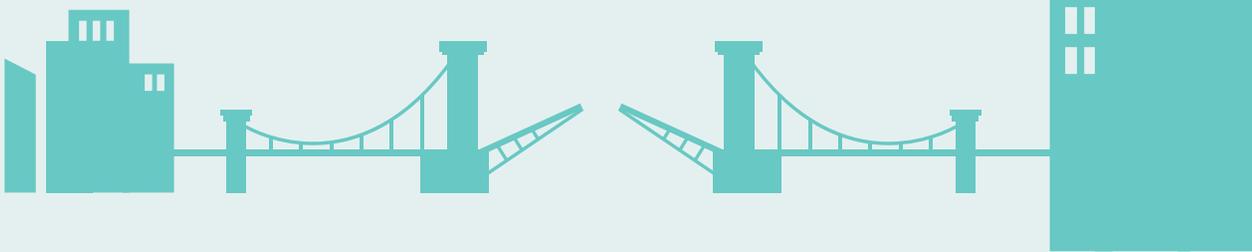
Institutions are conscious of the need to find better ways to meet long-term performance goals. However, slow peer group adoption, difficulties obtaining board buy-in and a lack of knowledge or understanding of less traditional strategies may impact their own firms' ability to change, at least in the short term.

Building understanding as to how these strategies work and are best evaluated will be a necessary step to build confidence and adoption by investors.

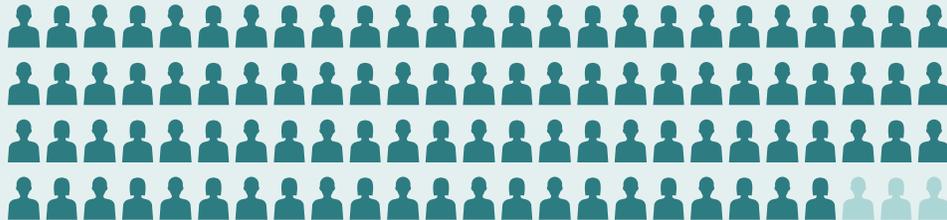
Investors' long-term return expectations on overall portfolio.

10.9%

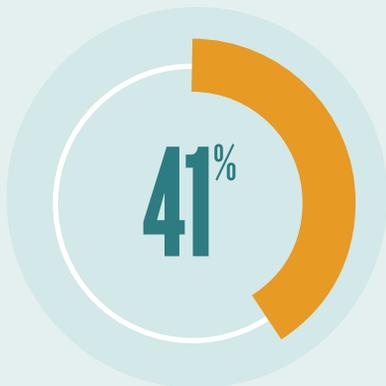
Building bridges to meet performance needs...



97%



Of investors expect significant change in the industry's investment approach over the next 5 years.



Define exposures the traditional asset class way.



Have adopted factor-based approaches.



Use objective-based classifications.

MIND THE GAP

Defining Objectives

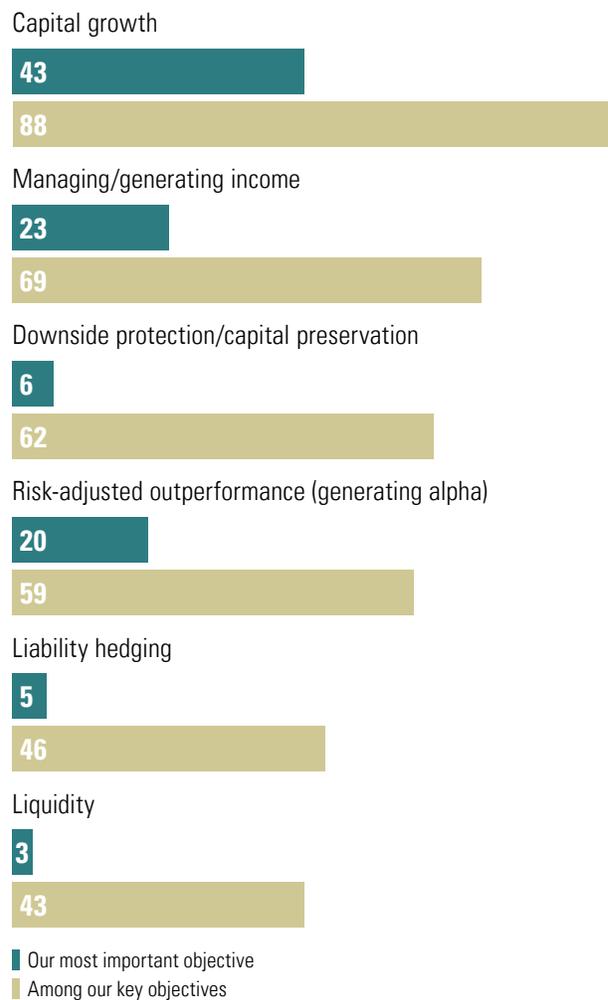
Institutional investors in our survey were asked about their most important objectives in terms of portfolio performance. Growth objectives, in particular, take priority for most – indeed, generating capital growth, income or alpha (a positive risk-adjusted return with respect to a benchmark) were rated as the primary objectives by 86% of respondents (See Figure 1).

Distinctions are visible between investor groups (See Figure 2), with different investor types indicating preferences for total return objectives (such as capital growth, income and downside risk) or relative return objectives (alpha and liability hedging).

Risk-adjusted outperformance was rated as more important among pension funds, funds of funds, investment managers and trusts. Meanwhile, more than half of endowments and insurance funds stated that achieving capital growth in their portfolios was their key aim.

Across investor categories, liability hedging was seen as relatively less important, with pension funds the only type of institution where more than 10% of respondents cited this as their primary objective. Downside protection, while not featuring as the primary concern, featured among the top concerns for 62%.

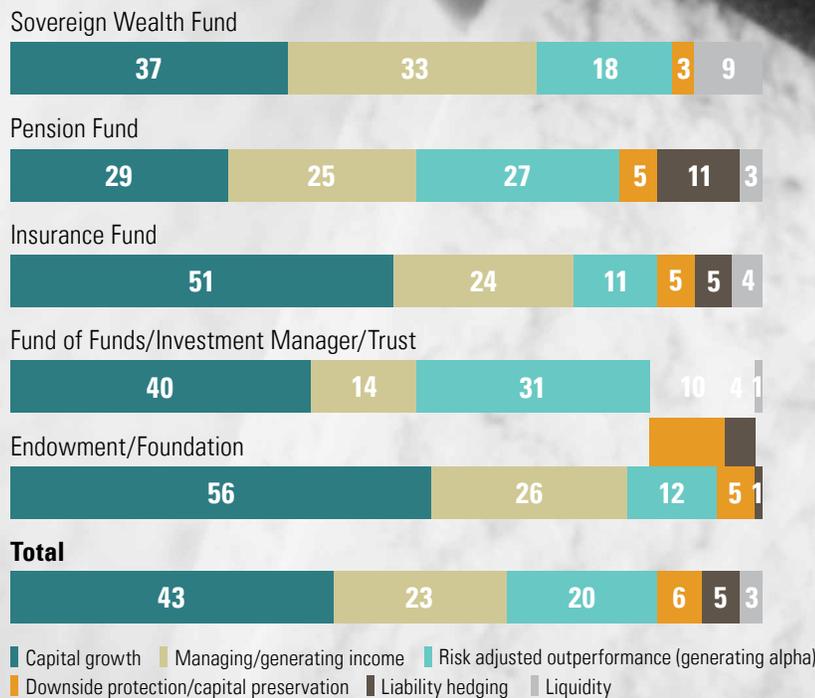
1. What are the key objectives of your fund? (%)



88%

Cited capital growth among their primary objectives.

2. What are the key objectives of your fund? (%, By investor type)



OVERLY AMBITIOUS?

3. What are your long-term (5 years+) return expectations for each of the following asset classes?

Real Estate	Commodities
10.9%	8.1%
Equities	Bonds
10.0%	5.5%

And for your overall portfolio?

Overall Portfolio
10.9%

Return Expectations Versus Reality

Our survey found generally elevated long-term return expectations across most asset classes. This raises the question as to whether expectations have adjusted to a potential lower-for-longer return scenario. SSGA's own expectation is for beta returns to be much lower than the long-term average for the next several years.

Investors' prevailing quest for portfolio growth, then, would appear to face distinct challenges. Almost a quarter of respondents said that their long-term return expectations are not currently being met (see Figure 4) with a mere 13% saying that their asset classes were performing above expectations. It should also be noted that the survey was undertaken prior to the significant market falls experienced at the start of 2016.

Survey respondents experiencing returns below their long-term expectations said that, on average, they expect this underperformance to continue (see Figure 5). Real estate and infrastructure were more likely to be considered by investors as being challenged for an extended period, with 47% and 25% of investors, respectively, expecting underperformance for a period of 2–4 years. Commodities, hedge funds and private equity were expected to underperform over a 12-month horizon.

New Approaches Required

A lower-for-longer return scenario – which we expect – means investors' return projections may be more difficult to achieve with traditional investment models. However, this is something that new approaches may be able to help with.

Delving into the actions of those investors looking to address shortfalls, real or potential, provides a guide to the types of solutions being sought and how they're being put into action. We explore this in more detail in the next section.

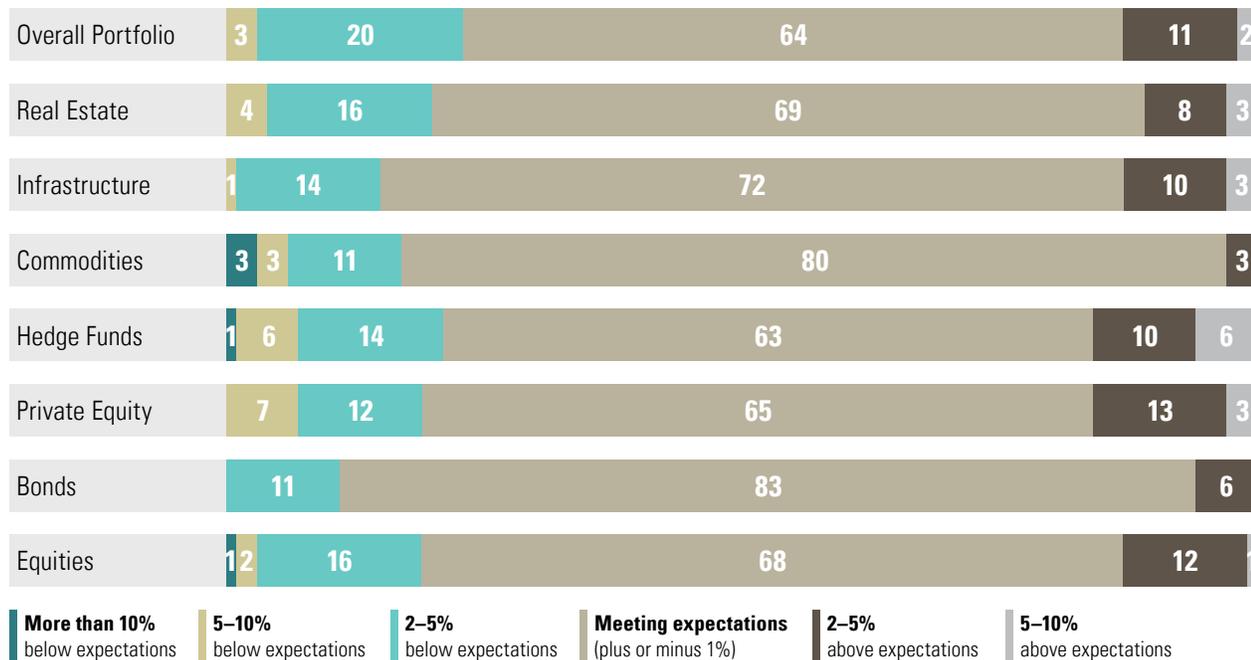
Investors' prevailing quest for portfolio growth would appear to face distinct challenges.

Almost:

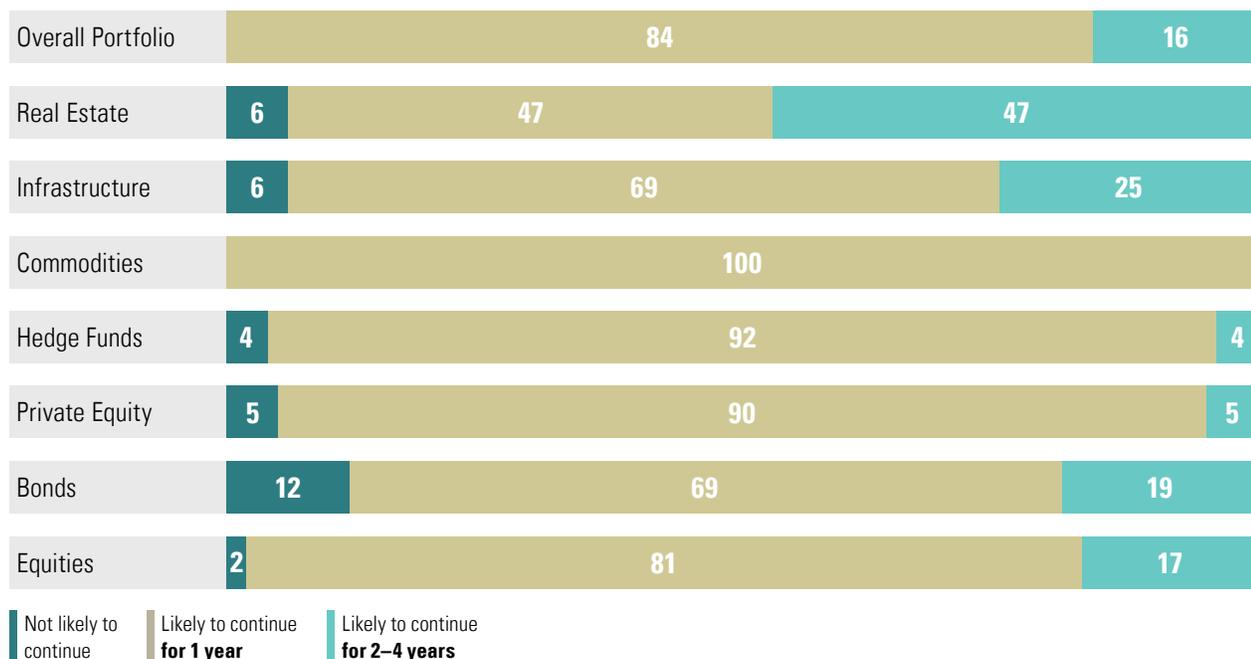
84%

of investors currently experiencing underperformance expect it to continue for 1 year

4. Are these return expectations currently being met? (%)



5. Do you think the underperformance is likely to continue? (%)



BUILDING BRIDGES

How to Get There?

We asked investors how they viewed their total portfolio in order to understand how they are addressing long-term performance objectives.

Traditionally, investors have classified assets according to asset exposures. Indeed, 41% of respondents said this was the most important method, citing its simplicity, among other reasons.

While viewing the total portfolio through the lens of a traditional asset class approach prevails, the survey revealed the significant adoption by many investors of an additional layer of factor-based classification (or by assets' exposure to different types of risk).

A full 65% said that they also classify assets by factor, with 30% indicating this was the most important method. A further 55% also classified according to assets' contribution to the portfolio's overall objectives, such as growth or income. This may be evidence of a warming to approaches beyond rigid asset allocation regimes.

We believe that including a view of factor contribution to portfolio returns is a positive step since it can help investors to better understand the roles that different assets play in their portfolios and the risks they comprise.

“We classify the assets by factors influencing their stability, or risks and their contribution to the ultimate objectives of our organization. This helps us in clearly defining our structure and in managing the funds well.”

CIO, US Pension Fund

“Our assets are classified by their exposure to various types of risks and we timely monitor risk factors and other market fundamentals.”

Investment Director, US Pension Fund

6. How do you currently classify the assets within your portfolio? (%)

Primary method

By asset class

41

By factors/exposure to types of risk

30

By contribution to objectives (e.g. growth, income)

25

By region

4

All methods that apply

By asset class

80

By factors/exposure to types of risk

65

By contribution to objectives (e.g. growth, income)

55

By region

15

Differences in Approach

Pension funds take the most traditional approach, with nearly half of respondents saying they focus on asset class-based categorization, rather than on the assets' risk factor exposures or their contribution to portfolio objectives.

Two-thirds of sovereign wealth funds, however, said that factor exposures and assets' contribution to meeting objectives served as their primary means of classifying assets, though it could be argued that their size and sophistication gives them more flexibility to analyze and adopt different approaches.

Addressing Performance

Investors who indicated that their overall portfolio was performing below expectations were asked to indicate how, if at all, they had changed their approach to address the shortfall.

Very few respondents (just 5%) said that they had left their portfolio strategy unchanged in response to disappointing realized returns (Figure 7).

Consistent with return expectations, the most popular change in approach to address underperformance was to increase the weight of alternative investments in their portfolio.

Sovereign wealth funds (42%) and pension funds (24%) were more likely to feature this approach as their most preferred.

The imperative to hit return targets could be driving investors to take on more risk as the global financial crisis becomes more distant.

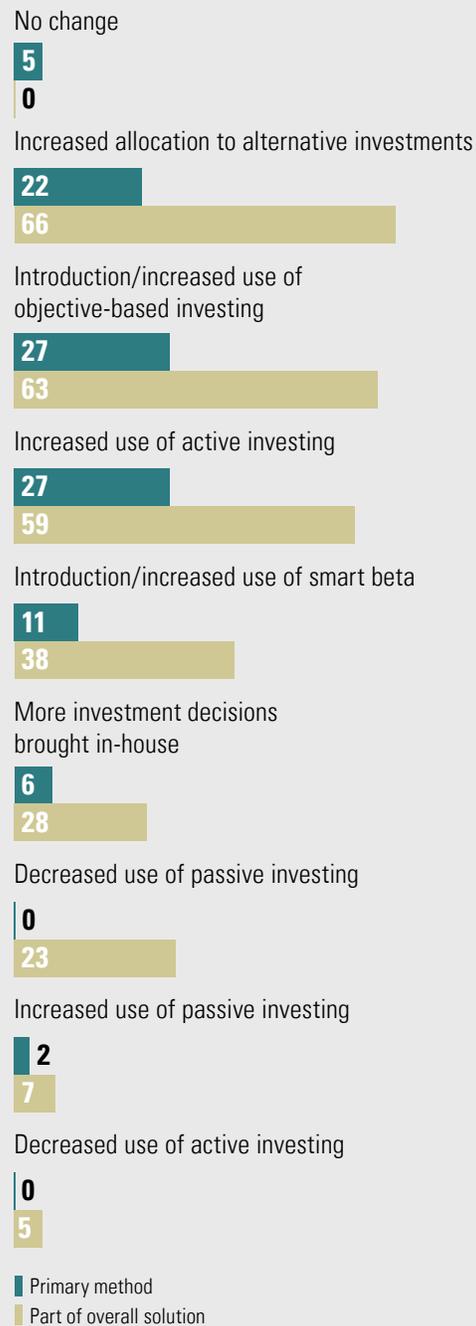
Deeper understanding of the drivers behind such a shift will be important – for example, is it being adopted to simply add a new return category, or are diversified alternatives strategies part of a broader strategy to help manage the risks associated with a higher equity allocation?

Other popular tactical changes included the introduction, or increased use, of objective-based investing (selected by 63% of respondents), and an increased use of active managers (selected by 59% of respondents).

“It’s important for investors to consider unintended consequences – people do seem to be taking on more risk...my ultimate question is how comfortable are they doing that?”

Dan Farley, CIO, Investment Solutions Group, SSGA

7. How have you altered your approach to address any underperformance? (%)



Finding the Right Solution

These shifts are perhaps to be expected. The reality of a lower expected return environment is motivating some investors to consider the different approaches they can take and how their existing pool of assets needs to shift and work harder to meet objectives.

Relying on greater active manager skill to help generate outperformance may work for some, but the evidence suggests that this manager “alpha” can be elusive. Some asset classes are more inefficient and lend themselves to greater opportunities in active investment approaches than others. Some investors will also be wary of the additional monitoring and governance burden that adding new managers might entail.

For one group of investors, the solution lies in finding ways for their money to work harder and achieving more from their core allocation by moving core assets into strategies like smart beta. Indeed, an increase in smart beta was nominated by 38% of respondents as being among strategies used to address performance shortfalls. Smart beta approaches typically target specific factor returns in a low-cost passive way, representing an alternative way to extract those returns from portfolio exposures.

“When our portfolio started underperforming we changed the way we were investing. We increased the use of smart beta, we changed our investment methods, we also started investing more based on our objective and ways to achieve them.”

Investment Director, European Investment Fund

Fees are typically an area of concern for many investors and the opportunity to target specific factor returns at lower cost could be contributing to investor interest in smart beta approaches.

8. Have you included smart beta amongst existing allocations?



Passive Funding Active and Smart Beta

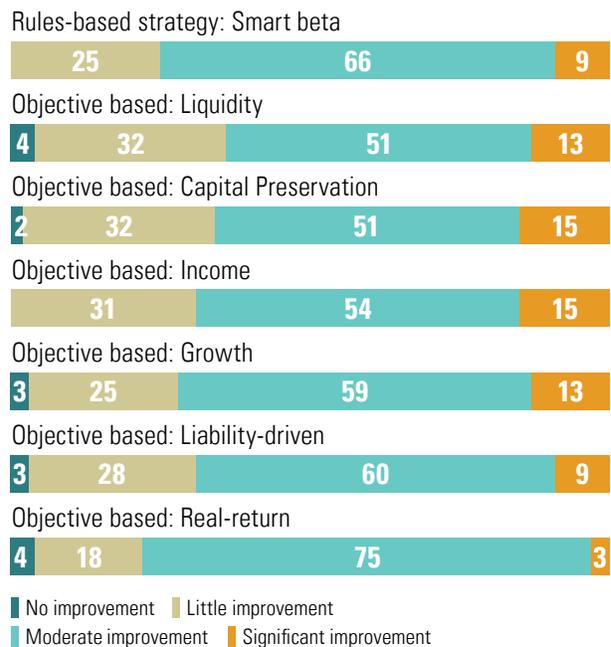
Respondents indicated that increases in active and smart beta allocations have generally been at the expense of the passive components of their portfolios, with 23% indicating that passive assets have been used to fund a shift in allocation. For investors anticipating shortfalls in beta returns, the passive portfolio would appear to be the natural starting place to allocate from.

However, our findings showed that just 5% of investors suggested that smart beta allocations were funded from active exposures. Few investors are currently using smart beta in its capacity as a potentially more efficient way to target exposures previously obtained from their active manager.

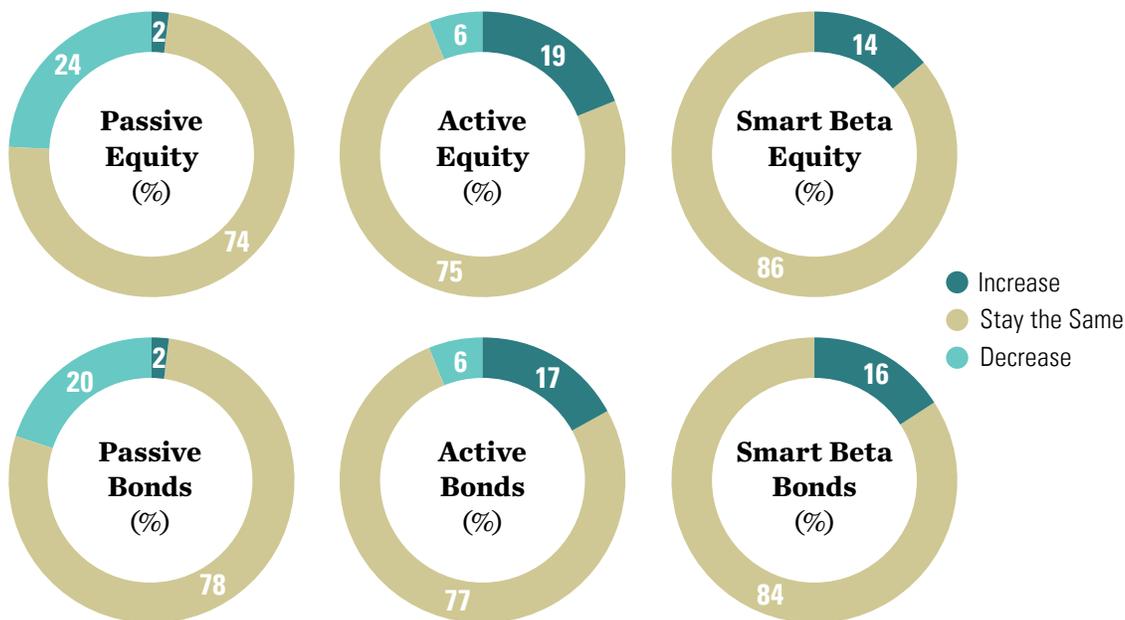
“It may be the case that a large portion of an aggregate portfolio’s active risk is explained by factor risk. Certain desirable risk factor exposures, such as an overweight to small caps, could be captured more cost-effectively with a smart beta portfolio.”

Lori Heinel, Chief Portfolio Strategist, SSGA

9. How would you rate the approaches already implemented in helping you meet your long-term goals?



10. How do you expect allocations to change over the next two years?



Increasing Smart Beta and Active

Investors also indicated a greater likelihood to seek higher allocations to active and smart beta strategies going forward. Across both equity and bond portfolios, 15% expected to increase smart beta allocations while 18% expected to increase active allocations. This contrasts with passive allocations, which were expected to stay the same or fall, with very few expecting a rise.

A shift from passive to active and smart beta is, perhaps, representative of a desire to extract more out of core allocations.

Comments received by survey respondents indicate that this planned shift is driven by considerations of future return, as well as an insistence on the importance of active management to narrow the gap between objectives and market returns.

Hitting the Mark

Despite institutions' evident caution in implementing new portfolio approaches, survey respondents who had introduced smart beta or objective-based strategies reported improvements in meeting their long term goals. (See Figure 9)

Three-quarters of those adopting smart beta said that this had made a moderate-to-significant improvement to their ability to meet their funds' long-term objectives. None of the respondents reported no improvement from the change.

Similarly, a large majority of the respondents who had introduced objective-based strategies (for example, focused on liquidity, capital preservation, income, growth, real return or the hedging of liabilities) indicated moderate or significant improvements to their funds' ability to meet their long-term goals.

"I would say we would be planning to increase the active and smart beta over the next two years because we are focusing on more return... There is also a chance of factor-based investments instead of passive for higher growth and returns on these investments."

Investment Director, Swiss Pension Fund

BARRIERS TO CHANGE

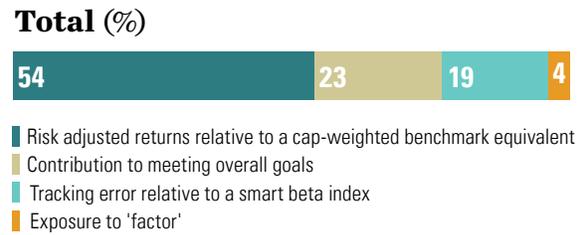
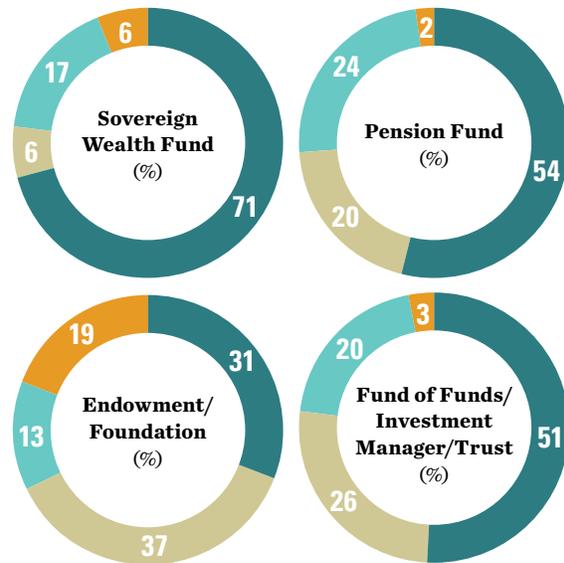
Understanding Return Profiles

Despite the imperative for growth, the appeal and adoption of new approaches to help target that growth appears to face a range of obstacles. Given our own views around the potential of smart beta strategies to deliver better risk adjusted returns over time, we wanted to understand more about what might be limiting broader adoption.

Relative to active or passive approaches, investors take a tougher stance assessing the performance of the relatively new smart beta strategies. While 60% would tolerate underperformance amongst active managers for more than a year before searching for new providers, just 20% of respondents said they would tolerate the same from their smart beta managers. This is at odds with evidence that smart beta factors tend to require longer investment cycles.

The basis for assessment of performance of smart beta is typically versus cap weighted benchmarks. 54% of survey respondents said they assess the performance of smart beta investment providers in this way, compared with only 19% who measure performance relative to a specific smart beta index and 23% who measure performance in terms of the contribution of smart beta to meeting overall goals.

12. How do you measure the performance of your investment providers for Smart Beta funds?



11. How long is underperformance tolerated before seeking a replacement?

Active Managers



Smart Beta Managers



By design, the returns of smart beta strategies will diverge from those of a capitalization-weighted market index. Smart beta premiums are not specifically designed to deliver short-term outperformance but exposure to one or more factors that outperform over a market cycle.

Measuring the performance of smart beta strategies over a short time horizon can be hazardous, as their benefits are typically designed to be realized over the longer term.

Where short-term performance or tracking error of single smart beta factors represent a barrier for investors, multi-factor approaches that blend factors with uncorrelated performance profiles can help manage the risk of short-term underperformance while preserving the longer-term factor premia. This new generation of smart beta strategies also helps to mitigate concerns about factor-timing risk.

The fact that the term ‘beta’ is used can lead some investors to think purely in terms of passive indexing, requiring tight tracking – that’s not necessarily the case with these strategies.

This indicates that further work in building understanding of these new approaches, their contribution to portfolio returns, and how they are best evaluated will be helpful.

This can include, for example, building insights into the environments in which given factors work and where they don’t. It also entails providing greater clarity on the role smart beta is playing in the portfolio.

“As asset managers, our role is to help guide investors in selecting factors and how they might be combined and that, I think, is very much an answer that’s specific to each organization.”

Dan Farley, CIO, Investment Solutions Group, SSGA

This inherent need for greater clarity is reflected in investors own criteria in selecting smart beta managers. The capacity of the manager to understand the investors’ objectives was the primary criteria for 21% of our survey respondents and in the top 3 for 55%.

Endeavours to provide ongoing guidance around how such strategies are working within portfolios, once adopted, will clearly be helpful in sustaining and building interest.

“We evaluate smart beta performance every six months – the concept is difficult to implement and we do not understand it as well as we would like to.”

Investment Director, Brazilian Pension Fund

13. What are the top three factors you consider when choosing a smart beta manager?

Understanding of our objectives



Record of past performance (actual return)



Fund/portfolio manager ratings



Flexibility to create bespoke solutions



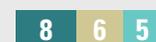
Recommendation from consultants



Simulated past performance (modelled return)



Size and scale



Level of fees



Transparency and governance

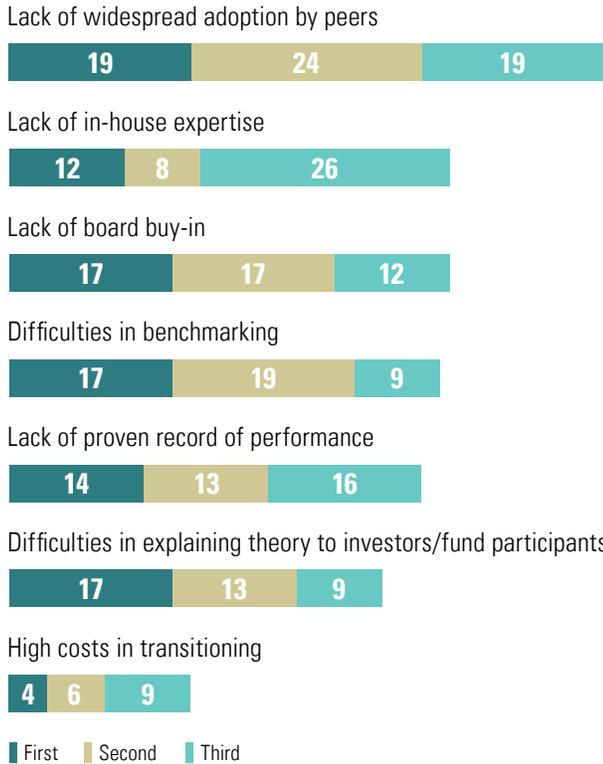


Trusted relationship



■ First ■ Second ■ Third

14. What are the top three obstacles to implementing smart beta? (%)



Other Barriers

Institutions are conscious of the need to find better ways of meeting long-term growth goals. However, many feel that slow peer group adoption of new investment approaches, together with difficulties of obtaining board buy-in, may impact their own firms’ ability to change, at least in the short term.

For smart beta specifically, lack of peer adoption was cited as particularly important by investors in Asia Pac (24%), compared with 19% in EMEA and 17% in the Americas. Difficulties explaining the theory behind smart beta was seen as an impediment for 23% of investors in Asia Pac, higher than the figures for EMEA (17%) and the Americas (11%).

Although most respondents indicated that their own institutions are likely to see only moderate changes to their funds’ structure, benchmarks and investment approaches over the next five years, survey participants were much more confident of substantial change when asked about the institutional investor community as a whole (see Figure 16).

“We face a hurdle in benchmarking our goals with peers, so that poses a challenge. I would say there is difficulty explaining the theory to investors because it involves a lot of technical terms – it is difficult to make them understand the long-term view of our investments and not only the short-term vision.”

Head of Investment, Australian Pension Fund

15. Proportion of respondents citing lack of peer adoption as a barrier to smart beta adoption.



16. How much will organizational structure, benchmarks and investment approaches have changed in 5 years' time?



"We can't change our investment approach quickly because of the various partners involved, but the institutional investor space is changing fast."

Head of Investment, French Fund of Funds



THE WAY FORWARD

Clear Need for New Approaches

Many investors recognise the need for new approaches to help meet their long-term objectives. This is particularly pertinent in the context of a lower-for-longer return environment.

Alternatives and alpha generating strategies remain a more familiar hence popular recourse for investors confronting a performance gap – but these should be seen in the context of their contribution to portfolio risk and whether factor tilts created by higher active weightings could be more efficiently achieved using other strategies.

A Shift of Focus

There are signs of a shift by some investors – incorporating a more holistic approach that includes asset allocations set by reference to objectives or factors. While moves are tentative and cautious, investors who have adopted factor-based approaches such as smart beta report satisfaction with the results.

Building better understanding of how these strategies work and are best evaluated will be a necessary step to encourage confidence and ongoing adoption by investors.

Continuing inflows into newer strategies like smart beta are likely to help institutions overcome concerns about limited peer group adoption. Ultimately investors need to develop the appropriate tools and expertise, as well as securing the support of all those responsible for fund management and governance. Meanwhile, institutions' service providers must ensure that they offer the solutions to enable their clients to make the leap.

Definitions used in this Study

Smart Beta: For the purposes of this research, smart beta is considered as a form of factor investing. Smart beta is based on a transparent, consistent, rules-based approach that seeks to capture a desired factor (or multi-factor) exposure relative to the capitalization-weighted market portfolio.

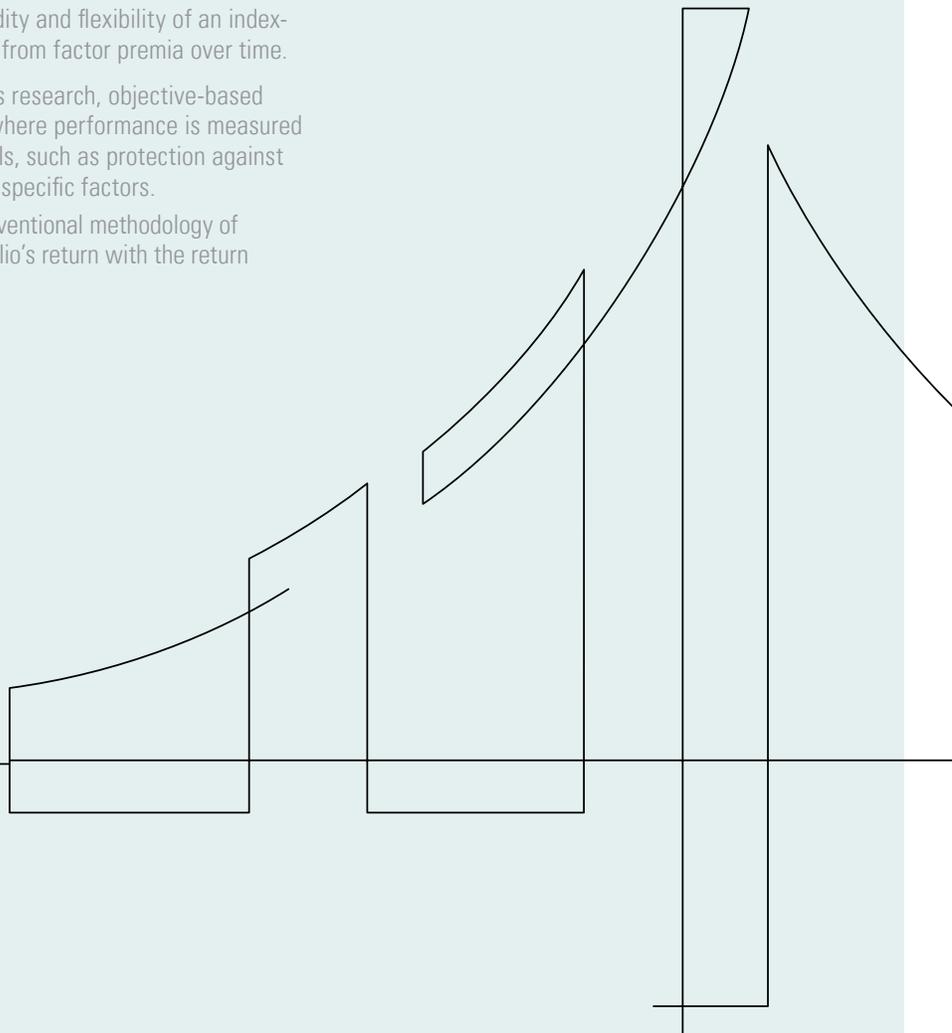
Empirical evidence suggests that these factor tilts, such as those historically associated with value, low volatility and small-cap stocks in the equity market, or issuer and credit risk in corporate or sovereign bonds, result in return premia which can be additive to the traditional market beta return.

Across asset classes, including equities, fixed income, commodities and currencies, smart beta strategies combine the transparency, liquidity and flexibility of an index-based investment approach with the ability to benefit from factor premia over time.

Objective-based Investing: For the purposes of this research, objective-based strategies are based on an investment methodology where performance is measured by the success of investments in meeting specific goals, such as protection against inflation, the matching of liabilities or the targeting of specific factors.

As such, objective-based investing differs from the conventional methodology of measuring financial performance by comparing a portfolio's return with the return of a specified benchmark.

**STATE STREET
GLOBAL ADVISORS.**



About Us

For nearly four decades, State Street Global Advisors has been committed to helping our clients, and those who rely on them, achieve financial security. We partner with many of the world's largest, most sophisticated investors and financial intermediaries to help them reach their goals through a rigorous, research-driven investment process spanning both indexing and active disciplines. With trillions* in assets, our scale and global reach offer clients unrivaled access to markets, geographies and asset classes, and allow us to deliver thoughtful insights and innovative solutions.

State Street Global Advisors is the investment management arm of State Street Corporation.

*Assets under management were \$2.2 trillion as of 31 December 2015. AUM reflects approx. \$22 billion (as of 31 December 2015) with respect to which State Street Global Markets, LLC (SSGM) serves as marketing agent; SSGM and State Street Global Advisors are affiliated.

ssga.com

FOR PUBLIC USE

State Street Global Advisors Worldwide Entities

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 Bank and Trust Company (Representative Office), Boulevard Plaza 1, 17th Floor, Office 1703 Near Dubai Mall & Burj Khalifa, P.O. Box 26838, Dubai, United Arab Emirates. T: +971 (0)4 4372800. F: +971 (0)4 4372818. **France:** State Street Global Advisors France. Authorised and regulated by the Autorité des Marchés Financiers. Registered with the Register of Commerce and Companies of Nanterre under the number: 412 052 680. Registered Office: 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. T: +49 (0)89 55878 100. 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. Incorporated and registered in Ireland at Two Park Place, Upper Hatch Street, Dublin 2. Registered Number: 145221. Member of the Irish Association of Investment Managers. 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 71'650'000.00, 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., Japan, Toranomon Hills Mori Tower 25F, 1-23-1 Toranomon, Minato-ku, Tokyo, 105-6325. Telephone: +81 (0)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, Adam Smith Building, Thomas Malthusstraat 1-3, 1066 JR Amsterdam, Netherlands. T: +31 (0)20 7181701. State Street Global Advisors 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) - Telephone: +65 6826-7555 - Facsimile: +65 6826-7501. **Switzerland:** State Street Global Advisors AG, Beethovenstr. 19, CH-8027 Zurich. 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 Number: 2509928. VAT Number: 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 Lincoln Street, Boston, MA 02111-2900. T: +617 664 7727.

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 information provided 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. You should consult your tax and financial 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 report is provided for informational purposes only and should not be considered investment advice or an offer for a particular security or securities. Please consult your tax or financial advisor for additional information concerning your specific situation.

Investing involves risk including the risk of loss of principal.

STATE STREET
GLOBAL ADVISORS