

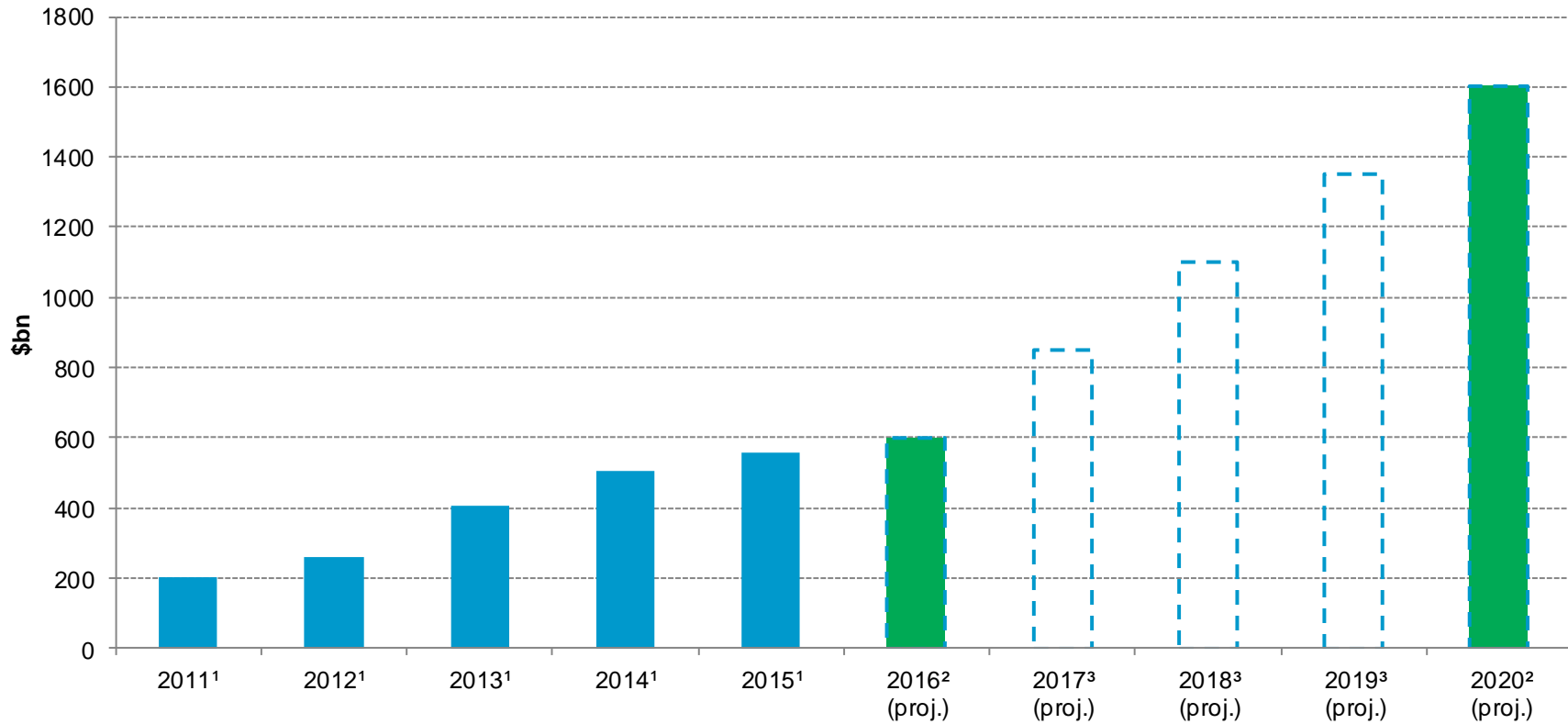
The Future of Factor Investing

Aniket Das, Index & Factor-Based Investing Strategist

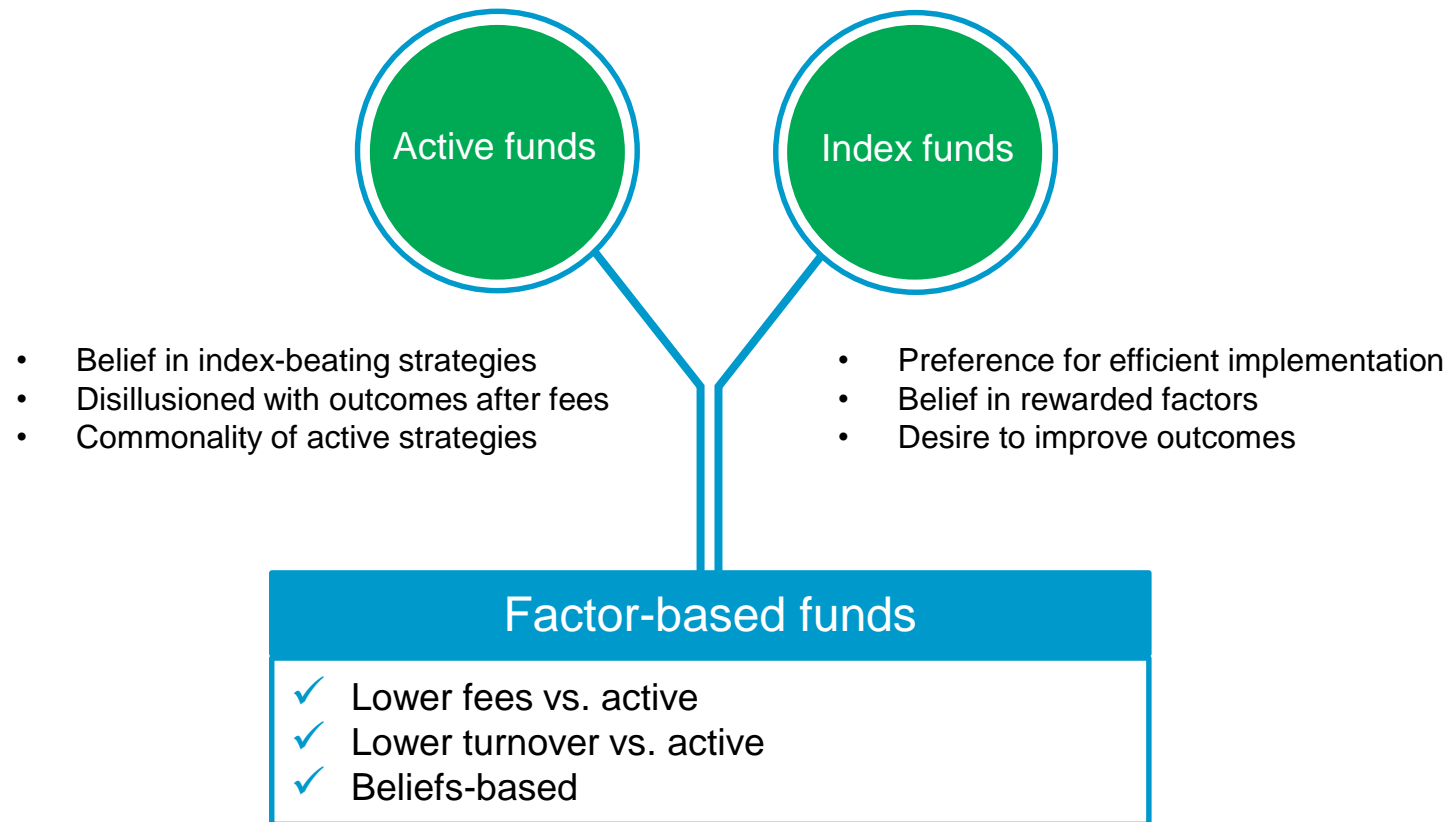
FOR PROFESSIONAL INVESTORS ONLY

Factor-based investing has grown quickly since the crisis

Assets invested in factor-based strategies (global)



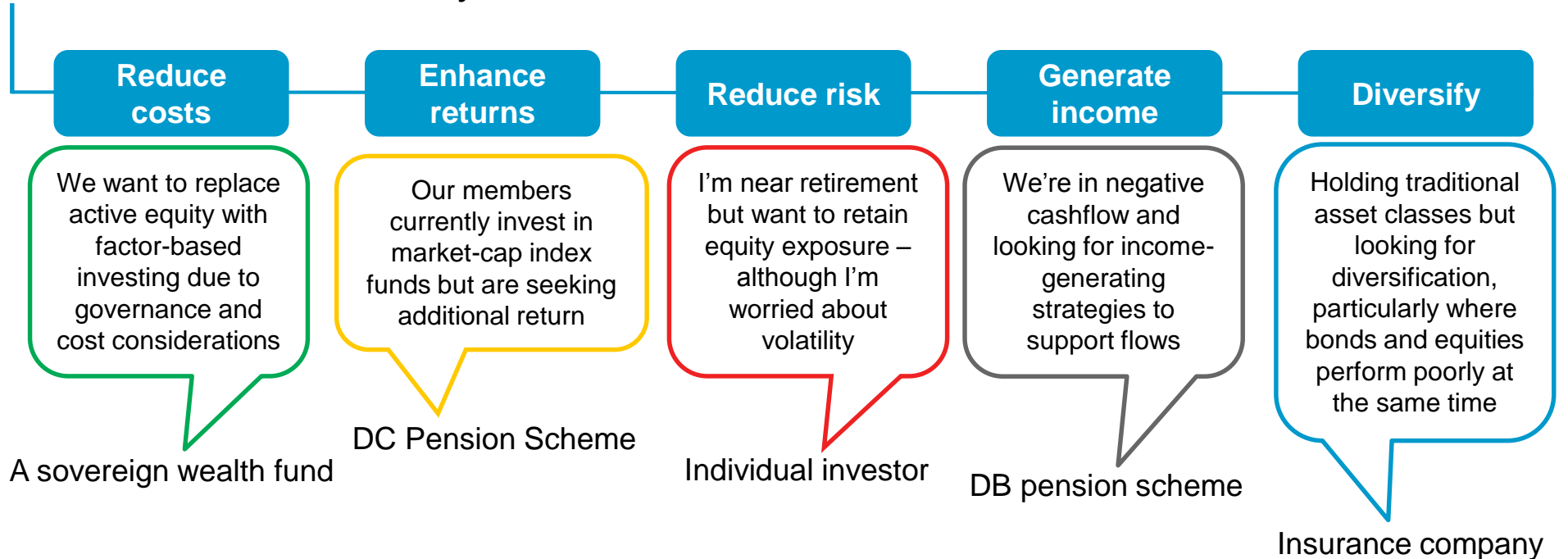
Two pathways – one destination



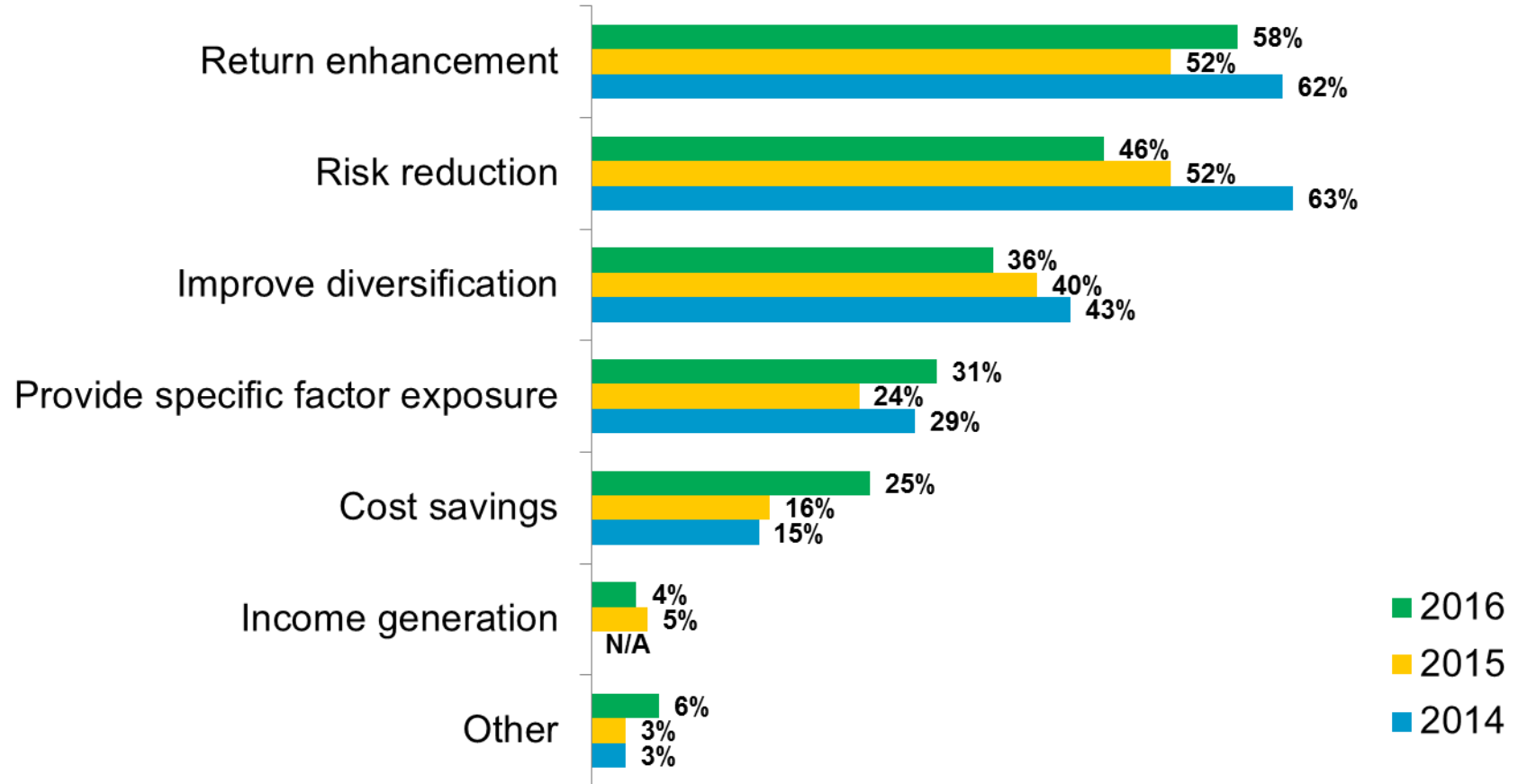
Begin with the end in mind

What are you trying to achieve?

Our clients tell us that they want to.....

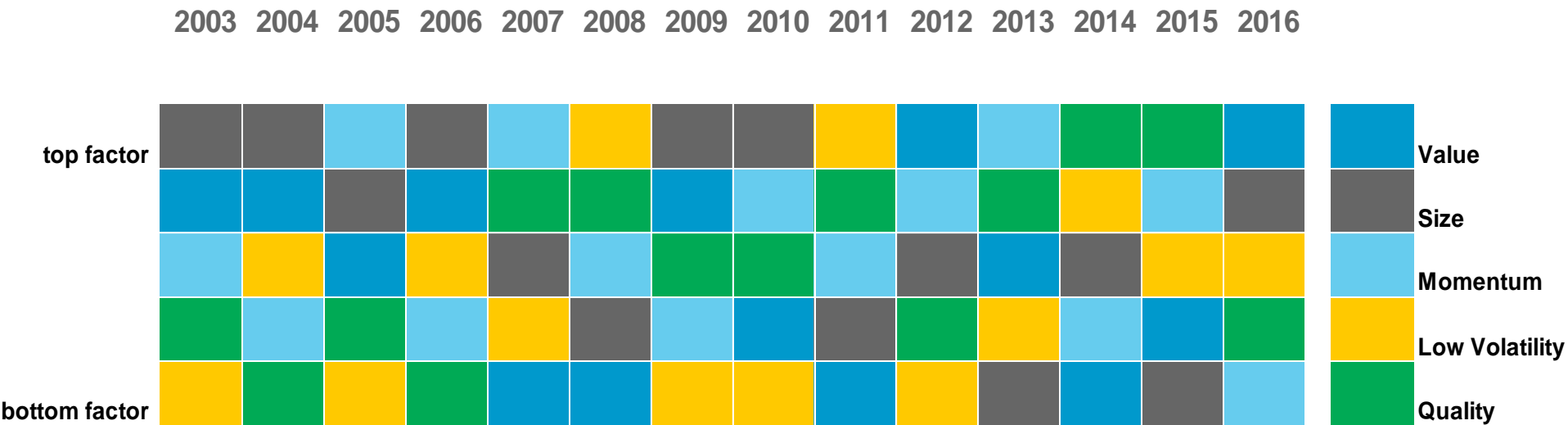


Why are investors globally looking to factor-based investing?



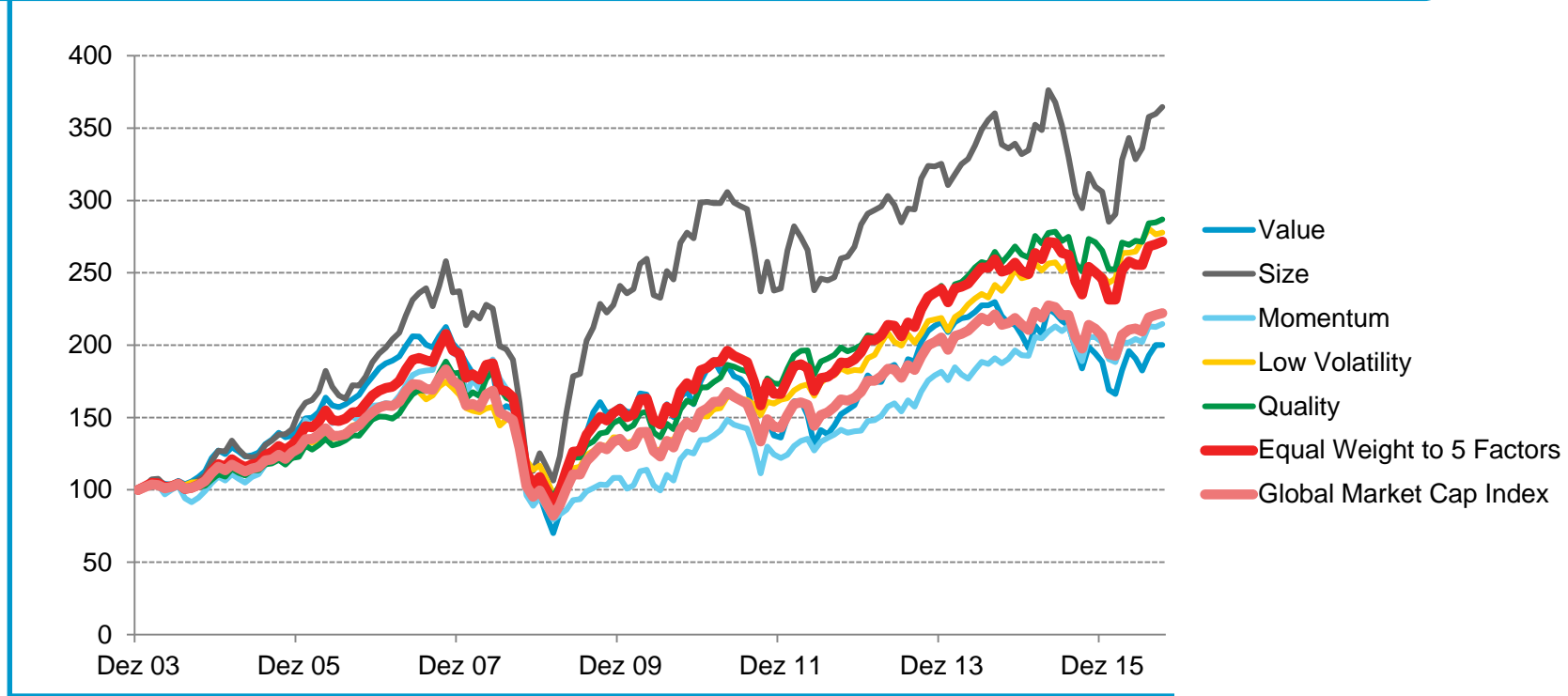
It's difficult to be certain about factor performance

Global factor returns



The case for multifactor

As factors go through different cycles, allocating to a number of factors helps to smooth performance and increase risk-adjusted returns



Top-down vs. bottom-up

Understanding the choices for multi-factor indices

There are different ways to achieve exposure to multiple factors:

Top-down

Allocates to factors as individual building blocks.

For example, a top-down multi-factor strategy might have allocations to a value portfolio, a quality portfolio and a low volatility portfolio.

Tends to favour stocks that score particularly well on one or more factors (“specialist” stocks).

Bottom-up

Gives each stock in the universe a score on each of the desired factors. Individual scores are combined for an overall multi-factor score which is used to derive a weight in the portfolio. There is significant variation in methodology across different bottom-up indices.

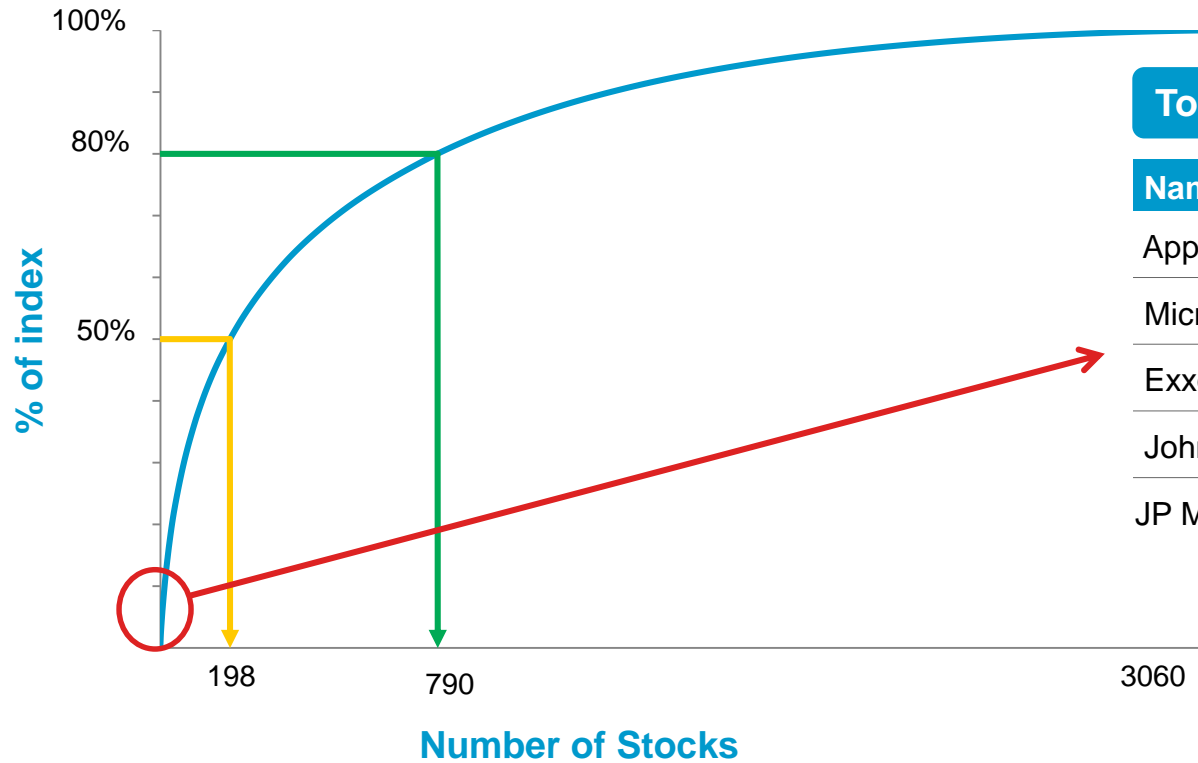
Considers stocks that score moderately well on each factor without scoring particularly well on one (“all-rounder” stocks).

What are the strengths and weaknesses of either approach?

Top-Down		Bottom-Up	
Strengths	Weaknesses	Strengths	Weaknesses
Transparent, easy to attribute performance at factor level	Usually does not consider all information in portfolio construction	Typically integrates all information in portfolio construction	More complicated, not as easy to understand
Modular, building block construction helpful in limiting number of funds	Inefficient if allocating across indices/funds that do not allow crossing	Naturally allows for “virtual” crossing to occur	Factor exposure stability can be more difficult to achieve
Top-down approach is more academically linked	Inconsistency issues if using different index providers for building blocks	More compatible with use of a stock level risk model	Fewer papers in academia supporting approach

Global market cap indices are concentrated

50% of the value is concentrated in just 6% of stocks



Top 5 stocks

Name	FTSE All World
Apple Inc.	1.6%
Microsoft Corp	1.2%
Exxon Mobil Corp	1.0%
Johnson & Johnson	0.8%
JP Morgan Chase & Co	0.8%

Choosing a weighting scheme

Understanding the choices

After deciding to invest into a factor, an investor needs to choose a weighting scheme

Market cap weighting	Alternative weighting schemes
<p>Use market cap weighting as the starting point</p> <p>E.g. A low volatility portfolio might start with the lowest 20% of stocks on share price volatility then weight them in proportion to their market cap weights</p>	<p>Such as equal weighting - where the lowest volatility stocks are all given the same weight.</p> <p>↓</p> <ul style="list-style-type: none">• Lower levels of concentration and more diversification reduces the effect of stock-specific risks• Marginally higher turnover relative to market-cap weighting strategy.• Bias towards smaller-sized companies that needs to be taken into account

We believe it's important that factor-based approaches pay significant attention to diversification and the weighting scheme used is an important element of this

Before you employ factor-based investing

Things to think about:

What are your objectives?

- Cost reduction?
- Risk reduction?
- Return enhancement?
- Income generation?
- Diversification?

What is your time horizon?

What investments are you considering?

What is your governance structure?

Do you understand how the strategy works?

Do you understand the costs of implementation?

- Increased turnover versus market cap indices
- Increased license fee versus market cap indices



Case Study: The Future World Strategy

A long-term strategy that helps manage climate risk.....

AIMING FOR BETTER
RISK-ADJUSTED
RETURNS



- Low costs
- Alternatively weighted index
- Potential to outperform from factor-based tilts

RESPONDING TO
CLIMATE RISK



- Reduce risks from future climate policy and technology changes
- Investing in companies that support a low-carbon approach

POSITIVELY
INFLUENCING CHANGE



- Climate Impact Pledge
- Active engagement to bring positive change
- Putting investment to good use

.....and helps to build a better future

Factor-based investing at LGIM

Expertise in Index Fund Management

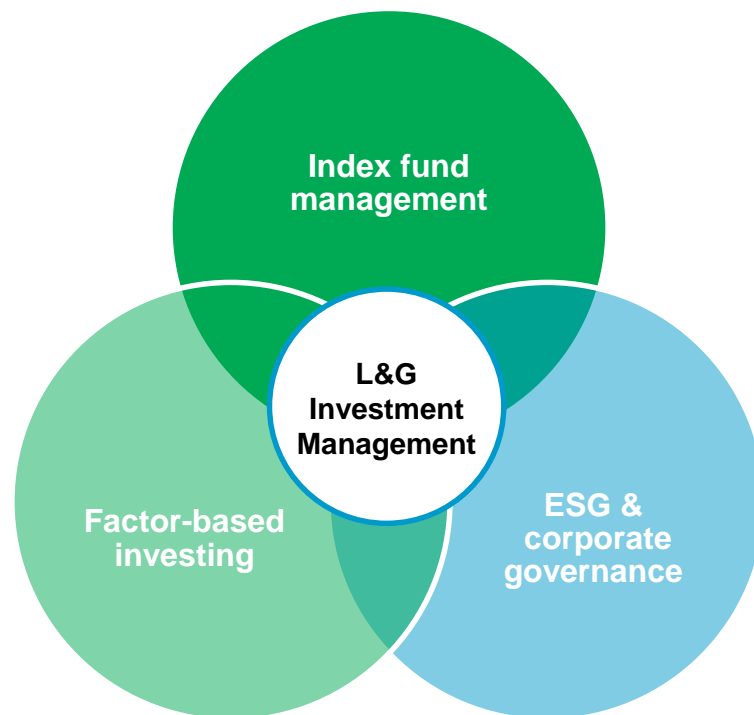
- Managing index assets for 30 years
- Leading global manager of index strategies, over £300bn of AUM
- Unique value enhancing approach to implementation
- Business model aligned with our clients' interests

Leading provider of Factor Based Investment funds

- Over £25bn AUM in over 20 strategies

ESG & Corporate Governance focus

- Dedicated resources to Corporate Governance
- Exercise stewardship actively for clients' benefit
- We strive to achieve positive societal impacts through investments
- We use our scale to influence company and market behaviour



Developing strategies to meet our clients' objectives

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