

# Invesco Global Factor Investing Study 2019

Summary report

This study is not intended for members of the public or retail investors. Full audience information is available inside the front cover.

|   |                 | NHL. |            |
|---|-----------------|------|------------|
|   |                 |      |            |
|   |                 |      |            |
|   |                 |      |            |
|   |                 |      |            |
| _ |                 |      |            |
|   |                 |      |            |
|   |                 |      |            |
|   |                 |      |            |
|   |                 |      |            |
|   |                 |      |            |
|   |                 |      |            |
|   |                 |      |            |
|   |                 | -    | D. A. HERD |
|   |                 |      |            |
|   |                 |      |            |
|   |                 |      |            |
|   |                 |      |            |
|   |                 |      |            |
|   |                 |      |            |
|   | <u><u> </u></u> |      |            |
| - |                 |      |            |
| _ |                 |      |            |
| - |                 |      |            |
|   | the formal and  |      |            |
|   |                 |      |            |
|   |                 |      |            |

This document is intended only for Professional Clients and Financial Advisers in Continental Europe (as defined in the important information); for Qualified Investors in Switzerland; for Professional Clients in, Dubai, Jersey, Guernsey, Isle of Man, Ireland and the UK, for Institutional Investors in the United States and Australia, for Institutional Investors and/or Accredited Investors in Singapore, for Professional Investors only in Hong Kong, for Qualified Institutional Investors, pension funds and distributing companies in Japan; for Wholesale Investors (as defined in the Financial Markets Conduct Act) in New Zealand, for accredited investors as defined under National Instrument 45-106 in Canada, for certain specific Qualified Institutions/ Sophisticated Investors only in Taiwan and for one-on-one use with Institutional Investors in Chile, Panama and Peru.

### The beauty of data

Ryoji Ikeda is a Japanese sound and visual artist who lives and works in Paris. His critically acclaimed installation *The Transfinite* in New York featured a wall flooded by finely articulated numerical and graphic data, a physical manifestation of information in its rawest form.

This proved to be the perfect backdrop to factor investing, a purely quantitative approach based on observable data rather than on opinion or speculation. The installation used light and music to bring this data to life in an utterly captivating way, showing how data can be beautiful. In fact, Ikeda says: "The purest beauty is the world of mathematics."

Images: © James Ewing/OTTO

Welcome to Invesco's fourth annual Global Factor Investing Study, based on an interview programme with 241 factor investors. Incorporating the views of 132 institutional investors and 109 wholesale investors that are together responsible for managing over \$25 trillion in assets (as of 31 March 2019), the study is the largest and most in-depth examination of global factor investing currently being undertaken.

Factor investing is a type of investment strategy in which securities are chosen based on certain characteristics and attributes - which are often termed 'factors' - that have tended to offer favourable risk and return patterns over time. While the discipline of factor investing has existed since the 1950s, the strategy has gained more acceptance and adoption in recent years, as investors learn more about what factor investing strategies can achieve and how they can be used as part of a portfolio. This year's study is an opportunity to understand paths of adoption, experiences, methods of implementation, future intentions and challenges to be overcome in factor investing.

We explore these topics through five key themes:

- 1. Factor investing adoption continues at pace as asset owners pursue a long-term approach
- 2. Investors embrace active implementation as they move to dynamic approaches
- 3. Factor investing and Environmental, Social and Governance (ESG): parallel developments, uncertain linkages
- 4. Future of factors: overcoming the barriers to scaling up
- 5. Fixed income: the next frontier for factor investing

# Theme one focuses on recent experiences and future allocation intentions, showing that existing factor investors are increasing their allocations to factor investing strategies.

Some 49% of respondents increased their factor allocations over the last 12 months and average allocations to factor strategies ticked up among both institutional and wholesale investors – from 16% to 18% for institutional factor investors and 11% to 14% for wholesale (using a common cohort approach) (figure 1.1). In common with last year, this increase in allocations came from both traditional active and market-weighted strategies, with investors seeing factor investing playing a distinct role in the portfolio, augmenting (and sometimes displacing) their other allocations.

Globally, 59% of respondents plan to increase their allocations to factor investing over the next three years (figure 1.2). This increase comes despite a period of underperformance for some factors. In the U.S., the 12 months to March 2019 saw low volatility, momentum, and quality factors outperforming their respective cap-weighted benchmarks. However, some other common factor strategies, including value and size, underperformed the S&P 500 index (figure 1.3). This was a largely global trend, with similar performance patterns also evident versus the MSCI World Index (figure 1.4).

Existing factor investors continue to report overall satisfaction with factor investing performance, with between 66%-70% of respondents reporting that their factor investing strategies matched or exceeded the performance of their traditional active and marketweighted allocations (figure 1.5). Most respondents identify as strategic investors looking to harvest factor premia over the long term. These investors treat their factor strategies more like asset classes (in contrast to traditional active allocations<sup>1</sup>) and have not been dissuaded by a short-term period of underperformance for some factors.

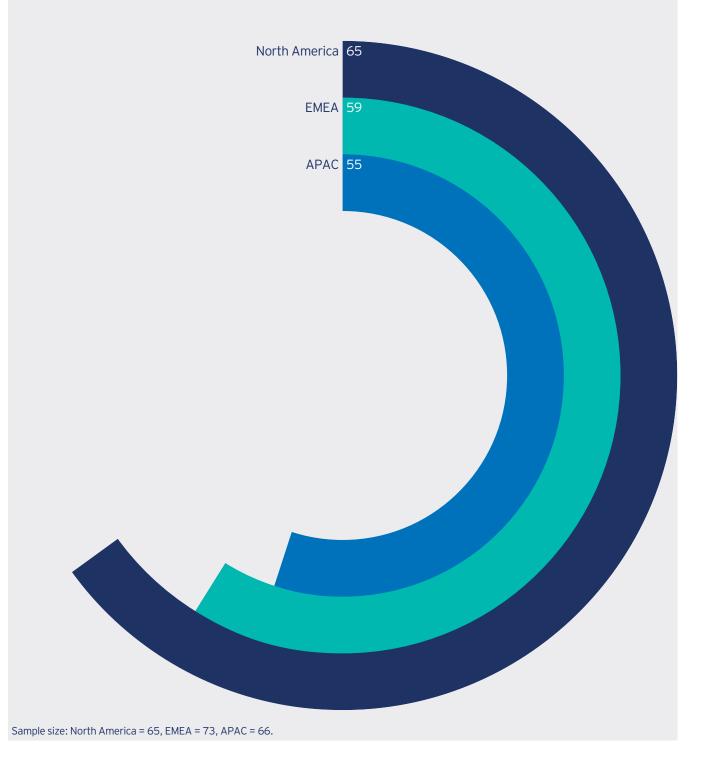
<sup>&</sup>lt;sup>1</sup>For the purposes of this report the term 'traditional active' means an investment style employed by portfolio managers who select investments based on independent assessment of each investment's worth and attempt to choose those that are most attractive investments, with the objective to outperform a particular market and/or market-weighted index.

Fig 1.1. Portfolio allocation (% average allocation, common cohort) Factor investing
Market-cap weighted
Fundamental active

| Institutional |      | Wholesale |      |  |
|---------------|------|-----------|------|--|
| 2018          | 2019 | 2018      | 2019 |  |
| 16            | 18   | 11        | 14   |  |
| 26            |      | 24        | 24   |  |
| 20            | 25   |           |      |  |
|               |      | 65        | 62   |  |
| 58            | 57   |           |      |  |

Sample size: Institutional = 45, Wholesale = 25.

Fig 1.2. Investors looking to increase factor allocations over next three years (% citations, by region, 2019)



| Fig 1.5. Perceptions of performance of factor allocations relative to   Outperformed     active and market-weighted allocations 2018/2019 (% citations)   In line     Underperformed   Underperformed |                        |            |                        |               |                        |            |                        |
|---|------------------------|------------|------------------------|---------------|------------------------|------------|------------------------|
| 2018  |                        |            |                        | 2019          |                        |            |                        |
| Institutional   |                        | Wholesale  |                        | Institutional |                        | Wholesale  |                        |
| vs. Active  | vs. Market<br>weighted | vs. Active | vs. Market<br>weighted | vs. Active    | vs. Market<br>weighted | vs. Active | vs. Market<br>weighted |
| 25  | 38                     | 24         | 52                     | 16            | 22                     | 19         | 23                     |
|   |                        |            |                        | 53            | 48                     | 50         | 43                     |
| 61  |                        | 68         |                        |               |                        |            | 43                     |
|   | 56                     |            |                        |               |                        |            |                        |
|   |                        |            | 41                     |               |                        |            |                        |
|   |                        |            |                        | 31            | 30                     | 31         | 34                     |
| 14  |                        | 8          | 7                      |               |                        |            |                        |
|   | 6                      |            |                        |               |                        |            |                        |

Sample size: In 2018, Institutional = 138, Wholesale = 158. In 2019, Institutional = 126, Wholesale = 106.

# Low volatility14.92Momentum12.74Quality9.74Size7.22Value2.17

9.50

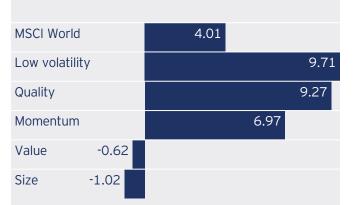
Fig 1.3. 12-Month US Index Total Returns

(%, as of 31 March 2019)

S&P 500

Total returns for the 12 months ended 31 March 2019. 'Low Volatility' refers to the S&P 500 Low Volatility Index; 'Momentum' refers to the S&P 500 Momentum Index; 'Quality' refers to the S&P 500 Quality Index; 'Size' refers to the S&P 500 Equal-Weighted Index; 'Value' refers to the S&P 500 Enhanced Value Index. Past performance is not a guarantee of future results. An investment cannot be made directly into an index.

# Fig 1.4. 12-Month Global Index Total Returns (%, as of 31 March 2019)



Total returns for the 12 months ended 31 March 2019. 'Low Volatility' refers to the MSCI World Minimum Volatility Index; 'Momentum' refers to the MSCI World Momentum Index; 'Quality' refers to the MSCI World Quality Index; 'Size' refers to the MSCI World Equal Weight Index; 'Value' refers to the MSCI World Value Weighted Index. Past performance is not a guarantee of future results. An investment cannot be made directly into an index.

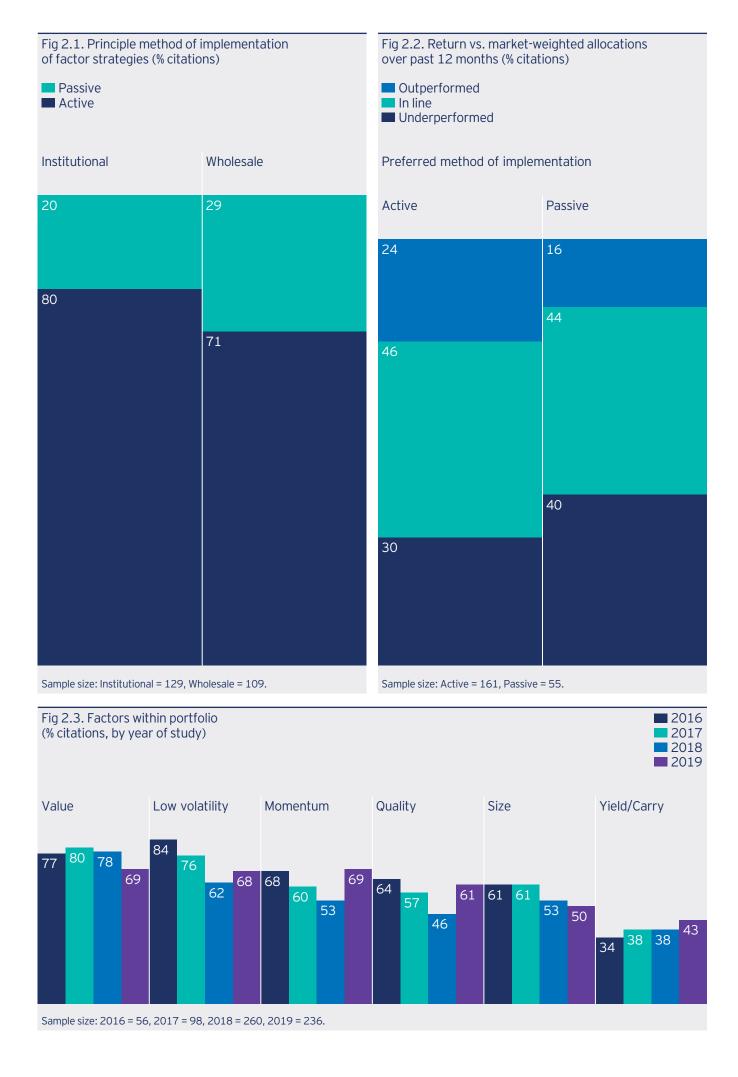
In theme two, we discuss approaches to implementation and find that investors increasingly believe that capturing the benefits of factor investing is in part dependent on adopting a dynamic approach. Respondents in this year's study preferred an active approach to implementation by a three-to-one majority (figure 2.1).

We found this active approach had been rewarded in the past twelve months: investors utilising an active approach were more likely to have registered outperformance within their factor allocations over the period (figure 2.2). Allocations to active implementation factor strategies are likely to increase further, with nearly half of investors planning to do so over the next three years compared to the 29% of respondents who plan on increasing allocations to passive implementation strategies.

Even when investors take a passive approach to implementation via a factor index, many prefer a custom approach to index design. We noted an appreciation of the advantages that custom indices offer, including better management of factors within the wider portfolio and more control over factor definitions and metrics. In contrast, standard indices are used primarily due to their simplicity.

In 2019 respondents have continued to increase both the number of factors they target and their usage of multi-factor strategies. They have also taken more active decisions about which factors to include or exclude. One of the results is a steady decline in exposure to the value factor (one of the first and most widely adopted factors) and a concurrent increase in the use of other factors such as momentum and quality (figure 2.3). The performance of the value factor has come under scrutiny, and in particular whether its current definition makes it pre-disposed towards value traps. However, it remains the most widely allocated factor and continues to have the widest level of support among both wholesale and institutional investors in terms of belief.

A useful outcome of increasing diversification of strategies and implementation approaches has been that concerns about factor crowding have ebbed away to be the lowest rated factor implementation challenge.



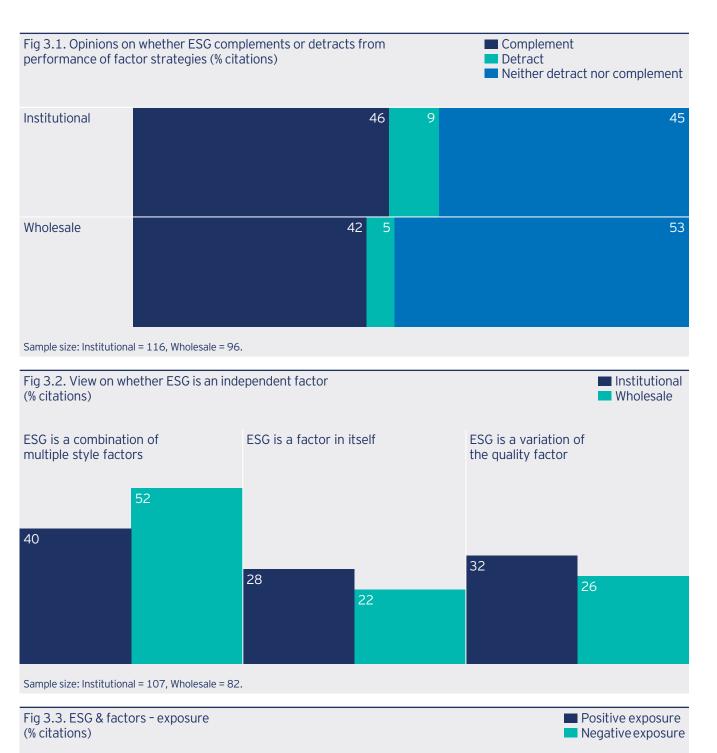
In our third theme, we look at how factor investing and ESG are developing in parallel, and the questions this raises around whether the two initiatives are synergistic, in conflict - or neither. Nearly half of investors (46%) believe ESG complements the performance of factor strategies, while around half see ESG as having no impact in either direction (figure 3.1). A 5%-10% minority however see ESG as detracting from factor implementation. There was therefore widespread support for the idea that ESG and factor investing interact - but limited consensus on the nature of this interaction. This is an important question, and we found demand from investors for a better understanding of this relationship.

When asked how ESG fits within a factor framework, some 27% of investors view ESG as a risk factor, 11% believe it is a return factor, and 39% of investors see it as both. Only around a quarter don't believe ESG is a factor at all. Some 28% of institutional respondents and 22% of our wholesale cohort recognise ESG as an independent investment factor. A slightly larger proportion see ESG as a variation of the quality factor. The most common view - but far from dominant - was that ESG could be regarded as a combination of style factors (figure 3.2).

Despite the uncertainties, investors see factor analysis as an avenue for adding more rigour to the debate around the impact of ESG on portfolio risk-return characteristics. There is potential to build factor models that both incorporate ESG requirements and take the impact of their interaction into account. This was seen as particularly relevant for "E" environmental aspects.

To date, the implementation of factors and ESG have typically been separate parallel efforts by asset owners. Only around a third of factor investors have conducted a separate factor analysis of their ESG portfolio or mandate. Those investors which have conducted this analysis have found useful insights, with ESG portfolios commonly having positive exposure to the quality factor and negative exposure to the value factor (figure 3.3).

With only a minority of investors having conducted this type of analysis, there is a risk that many investors do not have a clear view of how ESG integration is affecting their intended factor exposures, leading to the potential for unintentional tilts. The complexity of this analysis and a lack of available tools are seen as obstacles, and this is an area where many asset owners may need assistance from external partners.





# In theme four, we look at some of the obstacles that need to be overcome for factor allocations to scale up further.

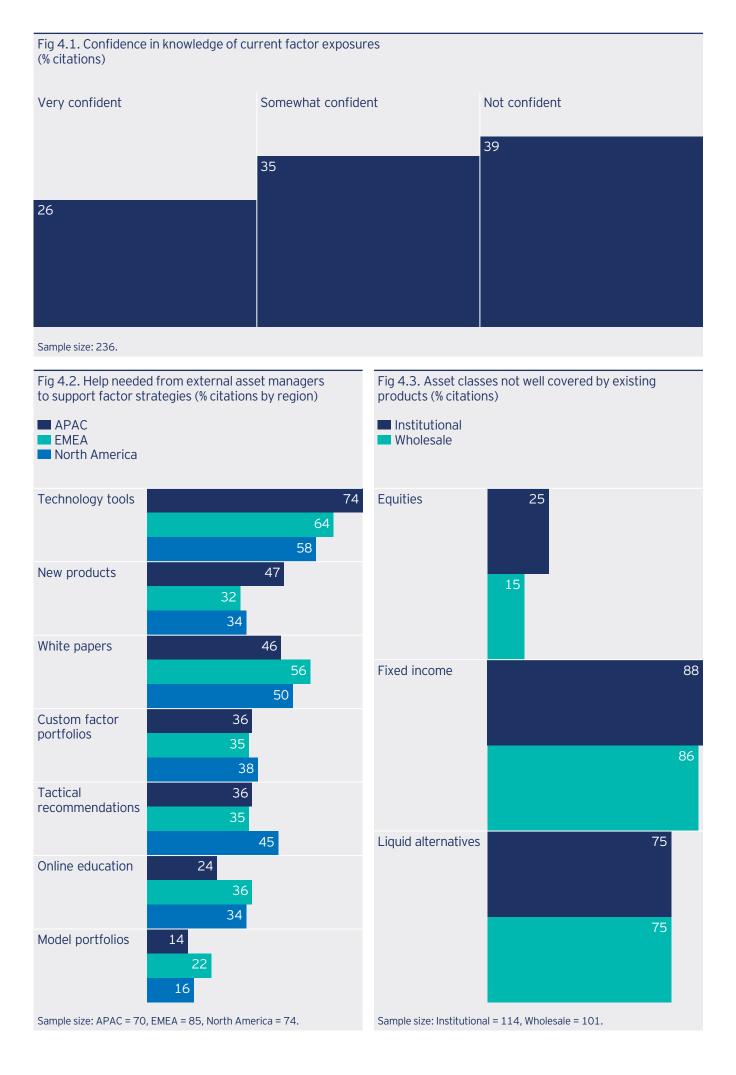
Only around a quarter of factor investors feel confident they have full knowledge of their factor exposures (figure 4.1). Given that two of the most important drivers of factor adoption are identified as the ability to optimize risk and exert more control over portfolio exposures, this is a challenge that risks undermining fully exploiting key benefits of a factor approach.

We found many sophisticated investors who were unable monitor factor exposures across multiple asset classes; the majority of investors identified a need for better tools that could help them monitor factor exposures and assist with portfolio construction (figure 4.2).

Nearly a quarter of institutional factor investors and half of wholesale investors are not attempting to monitor factor risk within their portfolio. Those that do use a mixture of off-the-shelf and proprietary methods (ranging from the simple to the complex), with institutional investors more likely to use off-the-shelf tools. However, dissatisfaction is common, with systems criticised as hard to customise, simplistic in their treatment of factors, and unable to combine multiple asset classes and derivatives.

Further challenges were identified around factor products. Despite extensive industry development, a significant minority of investors still see the equity asset class as insufficiently covered by quality factor products. In fixed income and liquid alternatives, the picture was even more pronounced, with significant scope for new offerings (figure 4.3). This is especially the case among institutional investors and more experienced factor users looking to implement factor strategies that can play a very specific role within a portfolio.

For wholesale investors, scaling up challenges also centred on client and advisor understanding. Most wholesale investors indicated that less than a quarter of their clients have funds allocated to specific factor strategies. Some 73% of wholesale respondents view complexity of factor theory as an obstacle, while outside of North America client awareness and interest is also viewed as a substantial barrier. Tools which could produce customised factor reports for individual clients are seen as particularly desirable and a route to furthering both understanding and adoption.



### We conclude with a focus on the extension of factor investing into fixed income portfolios. In the past 12 months there has been a substantial increase in the view that factor investing can be extended to this asset class.

70% of institutional investors and 78% of wholesaler investors believe this can be done, up from 62% and 57% in 2018 (figure 5.1).

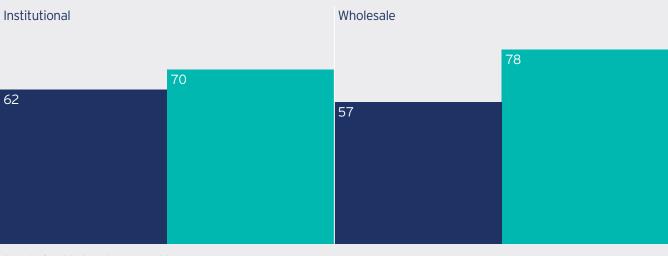
On an individual factor basis, investors see the yield/carry factor is the most relevant for fixed income, followed by liquidity, value, and momentum factors (figure 5.2). The overall appeal of factor investing to investors is as a solution that allows them to target well-recognised inefficiencies within fixed income markets more transparently. The growing belief in the applicability of factor investing to fixed income is tied to widespread recognition that the returns of all fixed-income portfolios, whether they are built utilising a factor-based approach or not, will be implicitly driven by exposure to factors.

Factor investing in fixed income is seen as delivering many of the benefits that have driven the strong performance of active fixedincome strategies, while also offering additional transparency and a potentially attractive cost.

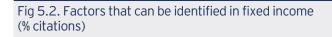
Some 35% institutional investors and 32% of wholesale investors added to fixed income factors over the past year (figure 5.3). There has been a significant uptick in the adoption of carry strategies among more experienced factor users, partly due to the rapid increase in the use of fixed income factors among this sub-set of respondents.

In last year's study, interest in extending factors across fixed income (and other asset classes) was predominantly something exhibited by more sophisticated investors. This year's findings suggest that as more investors move up the experience curve, demand for fixed income factor strategies will likely increase further. The spread of factor allocations across portfolios (not just equities) suggests that factor is gaining a more strategic footing in investing as a more transparent and efficient way of building a holistic portfolio. Fig 5.1. Percentage of respondents that believe factor investing can be extended to fixed income (% citations)





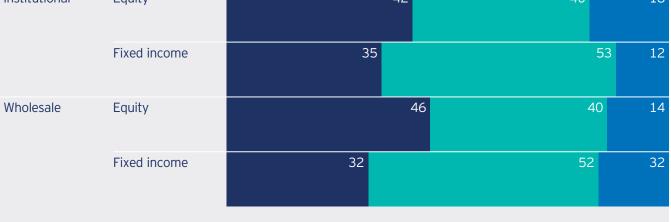
Sample size: 2018 = 284, 2019 = 231.



| Yield/Carry | Liquidity | Value | Quality | Momentum | Low volatility | Size |
|-------------|-----------|-------|---------|----------|----------------|------|
| 64          |           |       |         |          |                |      |
|             | 54 46     |       | 10      |          |                |      |
|             |           |       | 42      | 39       | 39             |      |
|             |           |       |         |          |                |      |
|             |           |       |         |          |                | 19   |
|             |           |       |         |          |                |      |

Sample size: 156.





Sample size: Institutional = 124, Wholesale = 107.

# Appendix

# Sample and methodology

The fieldwork for this study was conducted by NMG's strategy consulting practice. Invesco chose to engage a specialist independent firm to ensure high-quality, objective results. Key components of the methodology include:

- A focus on the key decision makers conducting interviews using experienced consultants and offering market insights.
- In-depth (typically 1-hour) face-to-face interviews using a structured questionnaire to ensure quantitative as well as qualitative analytics were collected.
- Results interpreted by NMG's strategy team with relevant consulting experience in the global asset management sector.

In 2019, the fourth year of the study, NMG conducted interviews with 241 different pension funds, insurers, sovereign investors, asset consultants, wealth managers and private banks globally. Together these investors are responsible for managing US\$25.1 trillion in assets (as of 31 March 2019).

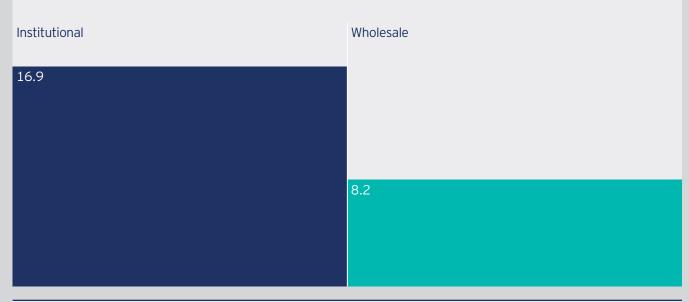
In this year's study, all respondents were 'factor users', defined as any respondent investing in a factor product across their entire portfolio and/or using factors to monitor exposures. We deliberately targeted a mix of investor profiles across multiple markets, with a preference for larger and more experienced factor users. The breakdown of the 2019 interview sample by investor segment and geographic region is displayed in figures 6.1, 6.2 and 6.3.

Institutional investors are defined as pension funds (both defined benefit and defined contribution), sovereign wealth funds, insurers, endowments and foundations.

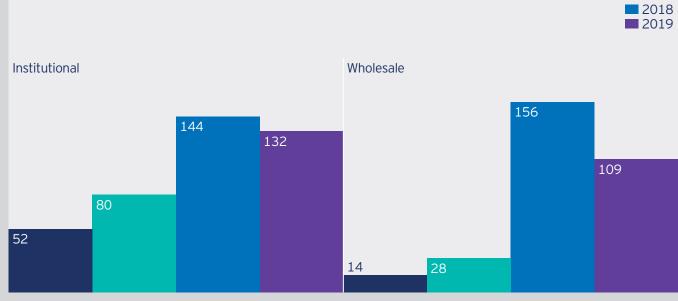
Wholesale investors are defined as discretionary managers or model portfolio constructors for pools of aggregated retail investor assets, including discretionary investment teams and fund selectors at private banks and financial advice providers, as well as discretionary fund managers serving those intermediaries.

Invesco is not affiliated with NMG Consulting.

# Fig 6.1. Assets under management by segment (US\$ trillion, as of 31 March 2019)









# **Investment risks**

The value of investments and any income will fluctuate (this may partly be the result of exchange rate fluctuations) and investors may not get back the full amount invested.

Factor investing is an investment strategy in which securities are chosen based on certain characteristics and attributes that may explain differences in returns. Factor investing represents an alternative and selection index-based methodology that seeks to outperform a benchmark or reduce portfolio risk, both in active or passive vehicles. There can be no assurance that performance will be enhanced or risk will be reduced for strategies that seek to provide exposure to certain factors. Exposure to such investment factors may detract from performance in some market environments, perhaps for extended periods. Factor investing may underperform capweighted benchmarks and increase portfolio risk. There is no assurance that the factor strategies discussed in this material will achieve their investment objectives or be successful. In general, equity values fluctuate, sometimes widely, in response to activities specific to the company as well as general market, economic and political conditions.

Fixed-income investments are subject to credit risk of the issuer and the effects of changing interest rates. Interest rate risk refers to the risk that bond prices generally fall as interest rates rise and vice versa. An issuer may be unable to meet interest and/or principal payments, thereby causing its instruments to decrease in value and lowering the issuer's credit rating.

The use of environmental and social factors to exclude certain investments for non-financial reasons may limit market opportunities available to funds not using these criteria. Further, information used to evaluate environmental and social factors may not be readily available, complete or accurate, which could negatively impact the ability to apply environmental and social standards.

Alternative strategies typically are subject to increased risk and loss of principal. Consequently, investments such as exchange-traded funds which focus on alternative strategies are not suitable for all investors.

### Important information

This document is intended only for Professional Clients and Financial Advisers in Continental Europe; for Qualified Investors in Switzerland; for Professional Clients in, Dubai, Jersey, Guernsey, Isle of Man, Ireland and the UK, for Institutional Investors in the United States, Australia and Singapore, for Professional Investors only in Hong Kong, for Qualified Institutional Investors in Japan; for Wholesale Investors (as defined in the Financial Markets Conduct Act) in New Zealand, for accredited investors as defined under National Instrument 45-106 in Canada, for Qualified Institutions/Sophisticated Investors in Taiwan and for one-on-one use with Institutional Investors in, Chile, Panama and Peru.

For the distribution of this document, Continental Europe is defined as Austria, Belgium, France, Finland, Greece, Luxembourg, Norway, Portugal, Denmark, Germany, Italy, the Netherlands, Spain, Sweden and Switzerland.

This document is for information purposes only and is not an offering. It is not intended for and should not be distributed to, or relied upon by members of the public. Circulation, disclosure, or dissemination of all or any part of this material to any unauthorised persons is prohibited. All data provided by Invesco as at 31 March 2019, unless otherwise stated. The opinions expressed are current as of the date of this publication, are subject to change without notice and may differ from other Invesco investment professionals.

The document contains general information only and does not take into account individual objectives, taxation position or financial needs. Nor does this constitute a recommendation of the suitability of any investment strategy for a particular investor. This is not an invitation to subscribe for shares in a fund nor is it to be construed as an offer to buy or sell any financial instruments. Past performance is not indicative of future results. Diversification does not guarantee a profit or eliminate the risk of loss.

Survey participants experience may not be representative of others, nor does it guarantee the future performance or success of any factor, strategy or product. There may be material differences in the investment goals, liquidity needs, and investment horizons of individual and institutional investors.

# Australia

This document has been prepared only for those persons to whom Invesco has provided it. It should not be relied upon by anyone else. Information contained in this document may not have been prepared or tailored for an Australian audience and does not constitute an offer of a financial product in Australia. You should note that this information:

- May contain references to amounts which are not in local currencies
- May contain financial information which is not prepared in accordance with Australian law or practices;
- May not address risks associated with investment in foreign currency denominated investments; & does not address Australian tax issues.

# Hong Kong

This document is provided to Professional Investors in Hong Kong only (as defined in the Hong Kong Securities and Futures Ordinance and the Securities and Futures (Professional Investor) Rules).

# Singapore

This document may not be circulated or distributed, whether directly or indirectly, to persons in Singapore other than to an institutional investor pursuant to Section 304 of the Securities and Futures Act, Chapter 289 of Singapore (the 'SFA') or otherwise pursuant to, and in accordance with the conditions of, any other applicable provision of the SFA. This document is for the sole use of the recipient on an institutional investor basis and cannot be distributed within Singapore by way of a public offer, public advertisement or in any other means of public marketing.

# New Zealand

This document is issued only to wholesale investors in New Zealand to whom disclosure is not required under Part 3 of the Financial Markets Conduct Act. This document has been prepared only for those persons to whom it has been provided by Invesco. It should not be relied upon by anyone else and must not be distributed to members of the public in New Zealand. Information contained in this document may not have been prepared or tailored for a New Zealand audience. You may only reproduce, circulate and use this document (or any part of it) with the consent of Invesco. This document does not constitute and should not be construed as an offer of, invitation or proposal to make an offer for, recommendation to apply for, an opinion or guidance on Interests to members of the public in New Zealand. Applications or any requests for information from persons who are members of the public in New Zealand will not be accepted.

# This document is issued in:

- Australia by Invesco Australia Limited (ABN 48 001 693 232), Level 26, 333 Collins Street, Melbourne, Victoria, 3000, Australia, which holds an Australian Financial Services Licence number 239916.
- Austria by Invesco Asset Management Österreich -Zweigniederlassung der Invesco Asset Management Deutschland GmbH, Rotenturmstrasse 16-18, A-1010 Vienna, Austria.
- Belgium by Invesco Asset Management SA Belgian Branch (France), Avenue Louise 235, B-1050 Brussels, Belgium.
- Canada by Invesco Canada Ltd., 5140 Yonge Street, Suite 800, Toronto, Ontario, M2N 6X7, Canada.
- Dubai by Invesco Asset Management Limited, Po Box 506599, DIFC Precinct Building No 4, Level 3, Office 305, Dubai, United Arab Emirates. Regulated by the Dubai Financial Services Authority.
- France, Finland, Greece, Luxembourg, Norway, Portugal and Denmark, by Invesco Asset Management SA, 16-18 rue de Londres, 75009 Paris, France.
- Germany by Invesco Asset Management Deutschland GmbH, An der Welle 5, 60322 Frankfurt am Main, Germany.
- Hong Kong by Invesco Hong Kong Limited 景順投資 管理有限公司, 41/F, Champion Tower, Three Garden Road, Central, Hong Kong.
- Italy by Invesco Asset Management S.A. Italian Branch, Via Bocchetto 6, 20123, Italy.
- Japan by Invesco Asset Management (Japan) Limited, Roppongi Hills Mori Tower 14F, 6-10-1 Roppongi, Minato-ku, Tokyo 106-6114; Registration Number: The Director-General of Kanto Local Finance Bureau (*Kin-sho*) 306; Member of the Investment Trusts Association, Japan and the Japan Investment Advisers Association.
  Jersey and Guernsey by Invesco International Limited,
- 2nd Floor, Orviss House, 17a Queen Street, St Helier, Jersey, JE2 4WD. Regulated by the Jersey Financial Services Commission.
- The Netherlands by Invesco Asset Management S.A. Dutch Branch, Vinoly Building, Claude, Debussylaan 26, 1082 MD, Amsterdam, The Netherlands.
- New Zealand by Invesco Australia Limited (ABN 48 001 693 232), Level 26, 333 Collins Street, Melbourne, Victoria, 3000, Australia, which holds an Australian Financial Services Licence number 239916.
- Singapore by Invesco Asset Management Singapore Ltd, 9 Raffles Place, #18-01 Republic Plaza, Singapore 048619.
- Spain by Invesco Asset Management SA, Sucursal en España, C/GOYA 6, 3rd floor, 28001 Madrid, Spain.
- Sweden by Invesco Asset Management SA (France) Swedish Filial, c/o Convendum, Jakobsbergsgatan 16, Box 16404, SE-111 43 Stockholm, Sweden.
- Switzerland by Invesco Asset Management (Schweiz) AG, Talacker 34, CH-8001 Zurich, Switzerland.
- Taiwan by Invesco Taiwan Limited, 22F, No.1, Songzhi Road, Taipei 11047, Taiwan (0800-045-066).
  Invesco Taiwan Limited is operated and managed independently.
- The Isle of Man, Ireland and the UK by Invesco Asset Management Limited, Perpetual Park, Perpetual Park Drive, Henley-on-Thames, Oxfordshire RG9 1HH. Authorised and regulated by the Financial Conduct Authority.
- The United States of America by Invesco Advisers, Inc., Two Peachtree Pointe, 1555 Peachtree Street, N.W., Suite 1800, Atlanta, Georgia 30309, US.

