

Invesco Global Factor Investing Study 2016

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

Foreword

At Invesco we have a single focus: to help clients achieve their investment objectives. We do this through understanding what their objectives are and a commitment to investment excellence.

We have seen client objectives change since the Global Financial Crisis, with investors seeking a better understanding of their risk and return profile. This has been driven by a sustained period of low interest rates and ongoing stock market volatility which has created a challenging environment for all investors. In addition the low yield environment means that investment costs have a greater relative impact on returns. This is driving growing interest in factor investing, as a complement to active investing, given its application in better understanding the risk and risk characteristics of portfolios.

Factor investing is often viewed as the third pillar of investing alongside active and passive but we would say factor investing is an alternative way to look at and address the market. It has the ability to drive outperformance supporting a better risk-adjusted trade-off and a truly diversified portfolio.

We have a strong track record of delivering diverse, time-tested investment strategies to meet a variety of investor's needs. Recently we established the Factor Investing Council to engage with investors at all levels ensuring we consider the needs and objectives of the investor and understand how the different factor products are positioned to clients. Our Factor Investing Council have taken a client centric approach and developed an effective industry proposition to support investors in their adoption of factor investing. This includes training and research, both academic and proprietary, alongside consulting advice.

Invesco is an expert practitioner in factor science and continues to push the boundaries of portfolio construction. With over 40 years' experience we are a true solutions business that incorporates sophisticated, scientific skills in risk premia, strategic and tactical factor allocation including dynamic allocation of themes. The Factor Investing Council brings together Invesco senior leaders, Bernhard Langer, Quantitative Strategy, Greg McGreevey, Fixed Income, and Dan Draper, PowerShares ETFs.

In this study we explore the views, opinions and experiences of institutional investors, consultants and private banks. We believe this investor perspective provides unique insights, on a topic that is dominated by the views of asset managers and academic opinion.

The Factor Investing Council and I hope that our first report provides a deeper understanding for how the industry is looking at factor investing and how Invesco can support the adoption.



Karen Dunn Kelley
Senior Managing Director
Investments

Theme 1

A clear role for factor strategies within the portfolio

Theme 2

There are multiple pathways to factor products in the institutional market

Theme 3

Private banks use factor products in a variety of ways and believe factor products are an important part of evolving their investment propositions

Theme 4

Investors are seeking greater control over their factor investments and are looking for more effective support from the industry to help build internal expertise

Theme 5

The outlook for factor investing is attractive with expected growth in customised active quantitative, fixed income and liquid alternatives

Appendix

Sample and methodology

Introduction

Over several decades, factor investing* has evolved from an academic concept to a strategic initiative. The current low return environment, high levels of market volatility and a growing base of academic research and products mean that factor investing is a consideration for many investors today. Institutional investors, asset managers, intermediaries and private banks are building their knowledge of factors and their role in performance and diversification.

While there is a wealth of research on academic theory and many opinion pieces from asset managers, the needs and practical applications of factor investing by asset owners are largely overlooked. Our Global Factor Investing Study explores the growth of factor investing via in-depth face-to-face interviews with chief investment officers, strategy unit executives and factor specialists at 66 leading global institutional investors, asset consultants and private banks. We spoke with investors who were leading the way when it came to factor investing, as well as 'non-users' who were yet to adopt this investment approach.

In theme 1 we look at how low yields and stock market volatility have encouraged institutional investors and private banks to take a greater interest in factor investing. There is a role for both smart beta and active quantitative investing as they seek low-cost factor solutions and diversification across their portfolio. We conclude our first theme by noting an interest in factor attribution analysis among respondents not currently using factor products.

We examine the pathways to factor investing in theme 2 and explore three institutional investor case studies based on our interviews. Asian sovereigns are developing internal quantitative models to increase the alignment between investment return and risk management. German insurers are moving to equity factor models to enhance returns while UK pension funds are beginning to invest in active quantitative products following the transition from fundamental active to indexing to smart beta.

In theme 3 we explore factor investing within private banks in greater detail, examining the role of investment specialists, private bank advisers and their high net worth (HNW) clients. There are several different ways in which private banks have adopted factor investing, from smart beta ETFs to the emergence of multi-factor solutions in centralised model portfolios. We explain that asset managers can do more to ensure their factor products resonate with private bankers and their underlying HNW clients.

We explore the role of external managers, consultants and academics in theme 4, considering how they can help institutions achieve their factor investing objectives. There are opportunities for asset managers and consultants to adopt a more investor-focused approach, based around advice and customisation.

In theme 5 we look at the growth potential for factor investing. Multi-factor quantitative strategies, fixed income and absolute return funds will likely be key drivers of growth. However, we finish by noting that the growth of factor investing will likely be dependent on performance of factor products and the ability of asset managers to develop more tailored propositions.

We hope the unique, evidence-based findings in this year's report provide a valuable insight into a complex and increasingly important investment theme.



Bernhard Langer, CFA
Chief Investment Officer
Invesco Quantitative Strategies
Co-chair Factor Investing Council



Dan Draper, CFA
Managing Director and Global Head
of Invesco PowerShares ETFs
Co-chair Factor Investing Council

*Factor investing sits between fundamental active management and market capitalisation indexing. Factor investing includes smart beta and quantitative strategies. Smart beta strategies are defined as non-market cap indices while quantitative products are defined as actively managed factor strategies.

Theme 1

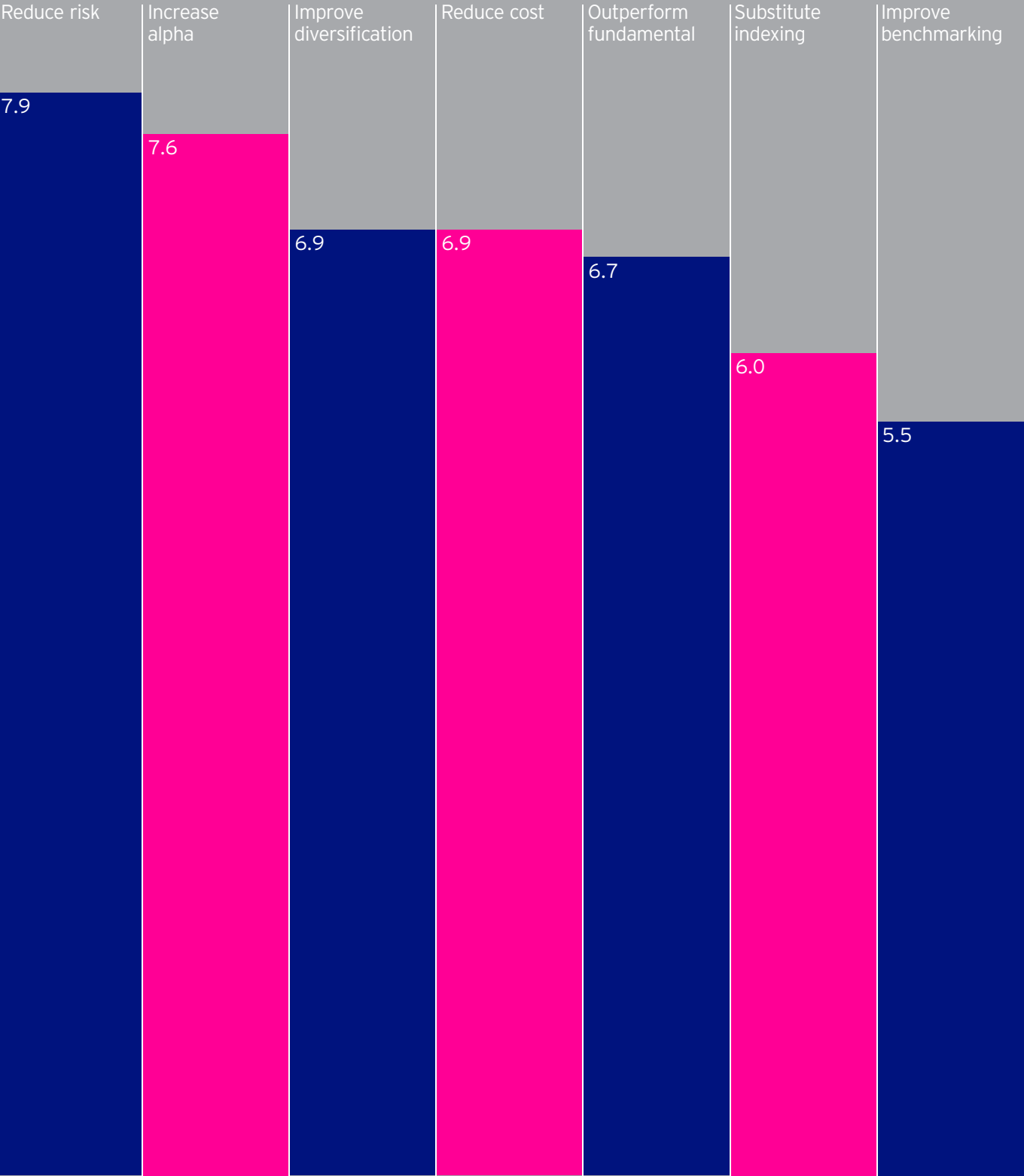
A clear role for factor strategies within the portfolio

Institutional investors and private banks are increasing their allocations to smart beta and quantitative factor products driven in part by the low return environment. The majority of non-users are considering factor products or willing to explore factor performance attribution on their portfolio.





Fig 1. Rationale for adopting factor investing



Factor users only. Sample = 51. Rating on a scale of 1-10 where 10 is the most important

Growing interest, appreciation and allocations to factor investing

A sustained period of low interest rates and ongoing stock market volatility have created a challenging investment environment for all respondents in our study. Each investor group has had to react differently to these conditions. Falling sovereign bond yields have driven up defined benefit liabilities and made it harder for insurers to meet target returns on guaranteed savings books. These institutions are increasingly focused on matching liabilities, understanding portfolio exposures and risks and generating returns within tight regulatory parameters. For institutional investors with less defined liabilities – e.g. sovereign investors and defined contribution plans – and private banks, the low return environment means that investment costs have a greater relative impact on returns. Respondents in our study explained that these macro investment trends are increasing their interest in factor strategies and encouraging further allocations to factor products. 83% of respondents in our study believe factors help explain outperformance, 70% use factors in portfolio construction and 28% rate factors as at least as important as asset allocation in the portfolio construction process. Across our sample nearly 10% of assets are allocated to factor products.

“We are revising our economic forecasts and this is leading us to consider factor-based products”
Pension Fund, North America

Space for smart beta and quantitative investing

Institutional investors (insurers, pension funds and sovereign investors) and private banks in our study allocate the majority of their portfolios to fundamental active management but indexing strategies have grown rapidly as investors believe they can access beta at a lower cost. Institutional investors, asset consultants and private banks believe factor investing occupies the middle ground between fundamental active and passive indexing strategies. Increasingly, smart beta strategies are cited as attractive alternatives to market capitalisation indexing. 55% of respondents agreed with the statement ‘smart beta represents value for money’, suggesting that the opportunity for smart beta to outperform traditional indices or reduce risk outweighs any potential increase in costs. At the same time respondents believe that quantitative investing can reduce risk relative to fundamental active management, with 78% of respondents agreeing with the statement ‘factor investing delivers high-quality risk-return profiles’.

“We have two uses for factor products: smart beta to reduce cost on the long-term strategic factor allocations, quant to reweight tactically and for opportunistic factor investments”
Pension Fund, North America

Reducing risk is the primary driver for factor investing

Respondents explained that the low return environment and volatile markets have increased the strategic importance of risk management within organisations. Respondents subsequently identified risk as the primary driver of selecting factor strategies, with figure 1 showing that reducing risk scored 7.9 out of 10 followed by 7.6 out of 10 for increasing alpha. Institutional investors felt that a better understanding of the correlations between their investments enabled them to reduce overall portfolio risk. Some institutions explained that a factor-driven approach had helped to ‘free up’ risk budget which could be deployed into riskier assets such as alternatives. Overall, factor investing had the ability to improve their risk management process in two ways. First, factor investing allowed institutions to monitor all the factor exposures of a given investment. Traditionally fundamental managers have only given their primary factor bias, without giving detail of their secondary factor exposures. Second, factor investing allowed them to monitor their factor exposures on an ongoing basis and to adjust their exposures according to their risk appetite.

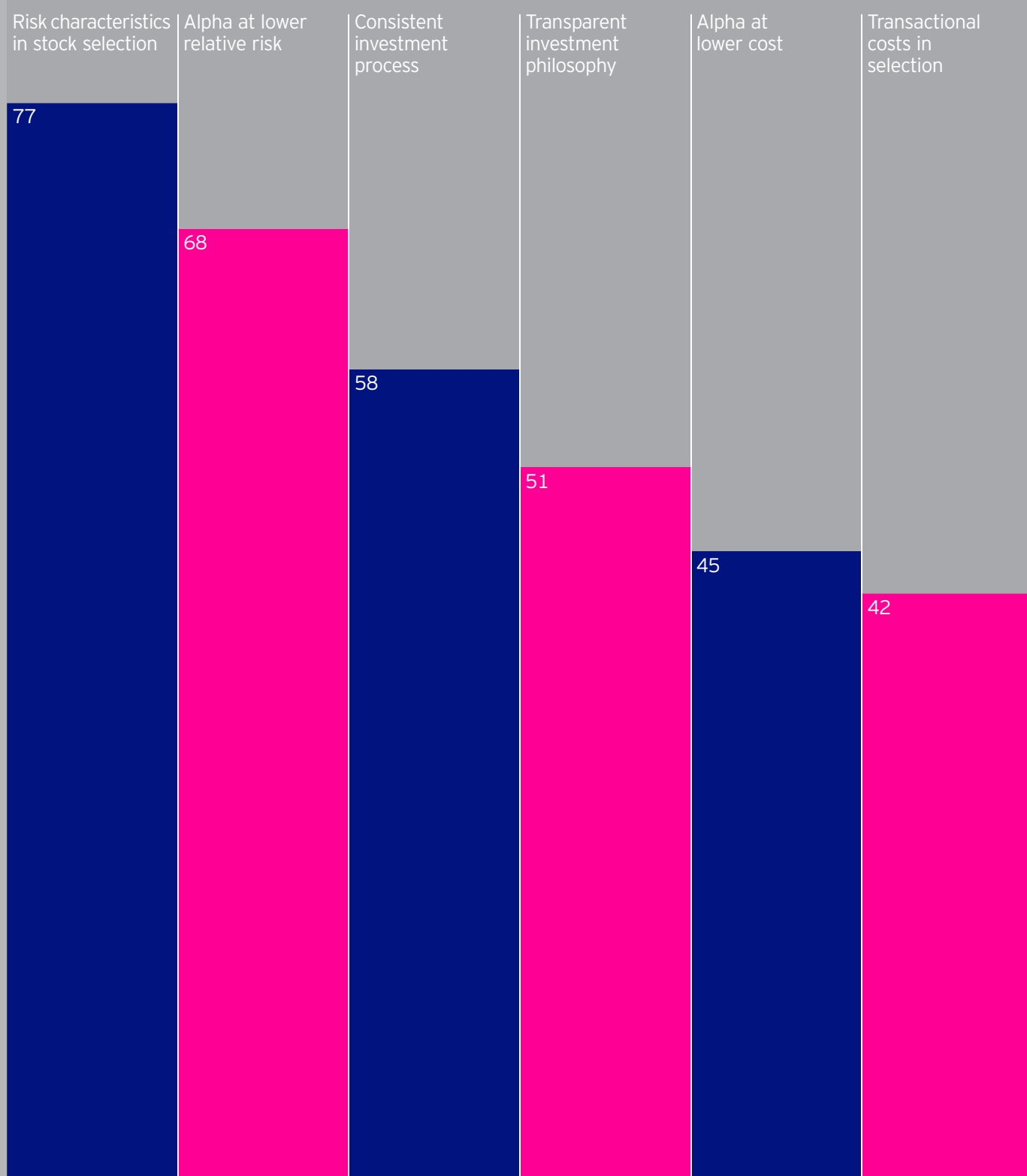
The desire to increase alpha was the second most important driver for factor adoption. Many investors discussed the trade-offs between risk, cost and return (alpha) when comparing factor strategies to fundamental active or indexing alternatives. In cases where alpha was cited, respondents explained that factor investing can replicate a proportion of fundamental active performance. We note that because market volatility increased the importance placed on risk as a driver of factor investing, the importance of alpha could increase in the future if market volatility stabilises.

The inclusion of risk characteristics in stock selection and the generation of alpha at a lower relative risk were cited as the primary ways quantitative strategies differentiate from fundamental (see figure 2). However, to suggest risk reduction is the primary driver of factor adoption would be an oversimplification of a complex decision-making process. Drivers of adoption vary based on the type of factor product, the profile of the institution and the source of assets. The next two themes in this report will explore factor adoption in more detail.

"Without understanding the balance of risk exposures, our portfolio could easily become highly correlated without us realising"
Pension Fund, Europe

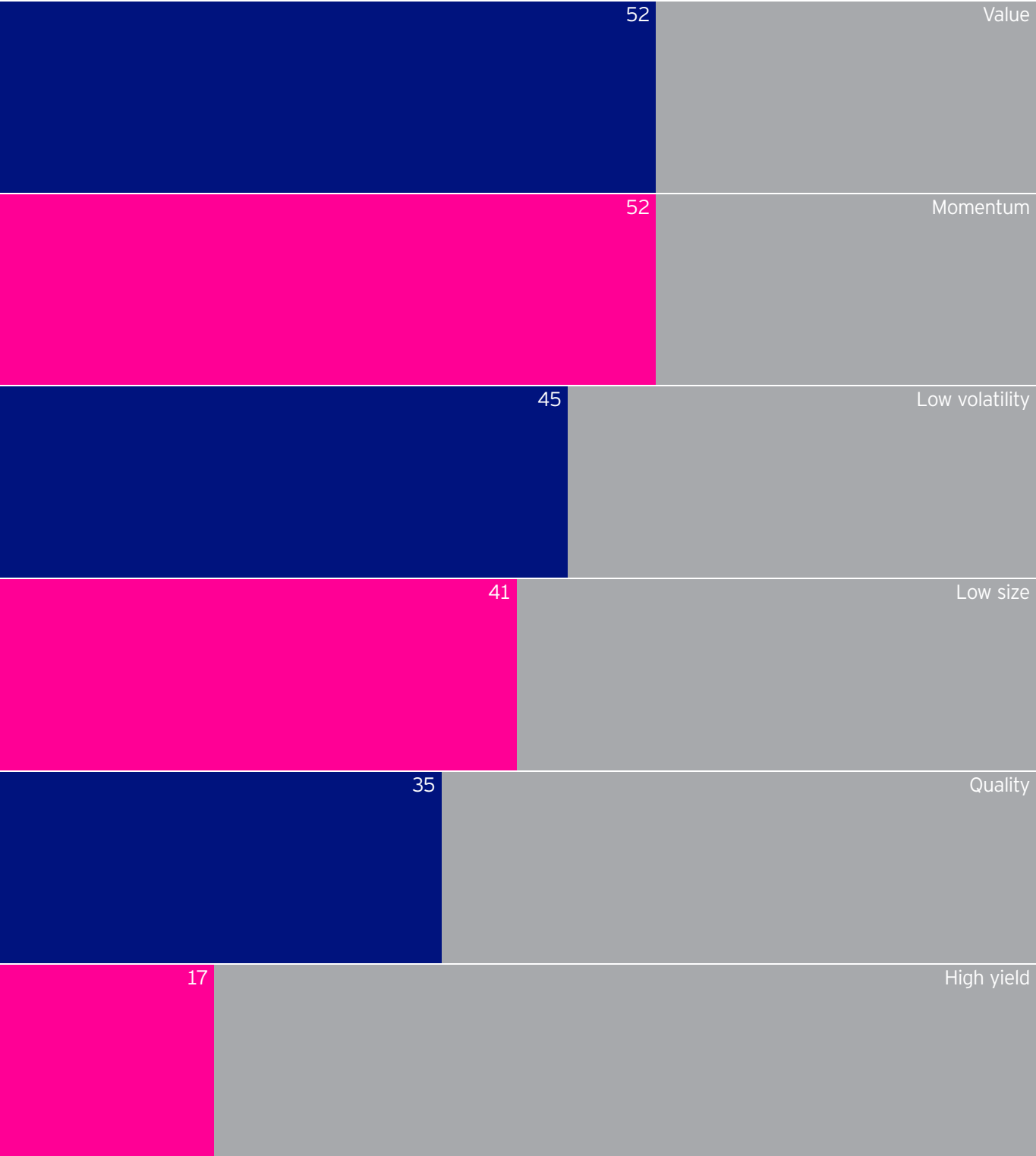
"Having a clearer perspective on the risks actually allows us to access more investment opportunities"
Insurer, Asia

Fig 2. Primary ways active quantitative strategies differentiate from fundamental strategies (%)



Percentage represents the number of respondents giving the statement a score of 7 or more. All respondents. Sample = 66

Fig 3. Factors that explain performance (%)



All respondents. Sample = 66
'Quality' includes 'Defensive' strategies, 'High yield' includes 'Carry' strategies

Perceptions of underlying factors are influenced by factor product usage

Understanding investor perceptions of the importance of underlying factors provides insight on the drivers for factor investing. Figure 3 shows that momentum and value were most commonly cited factors for explaining performance. Momentum and value factors target rising and under-priced securities which means they are relatively volatile factors. Subsequent discussion around the rationale for these citations confirmed that these respondents had a strong understanding of relative factor risk.

We also note higher citations for low volatility and low size than factor theory would predict. However, these factors account for a large percentage of existing factor products, for example low volatility accounts for 25% of all factor product allocations cited in our study. Low volatility has been particularly in demand due to its strong recent performance and volatility in global markets. Respondents citing low volatility as the most important factor typically held a low volatility product, indicating that their views were influenced by their product holdings rather than a strong understanding of the risk/return profile of different factors.

"Value and momentum have been biases of successful active managers for decades and are easy to replicate"
Sovereign, North America

"Low size has been a key factor in hedge fund returns - leveraging a small cap bias can give a pretty good replication"
Asset Consultant, Europe

The majority of non-users remained open to factor attribution analysis on their portfolio

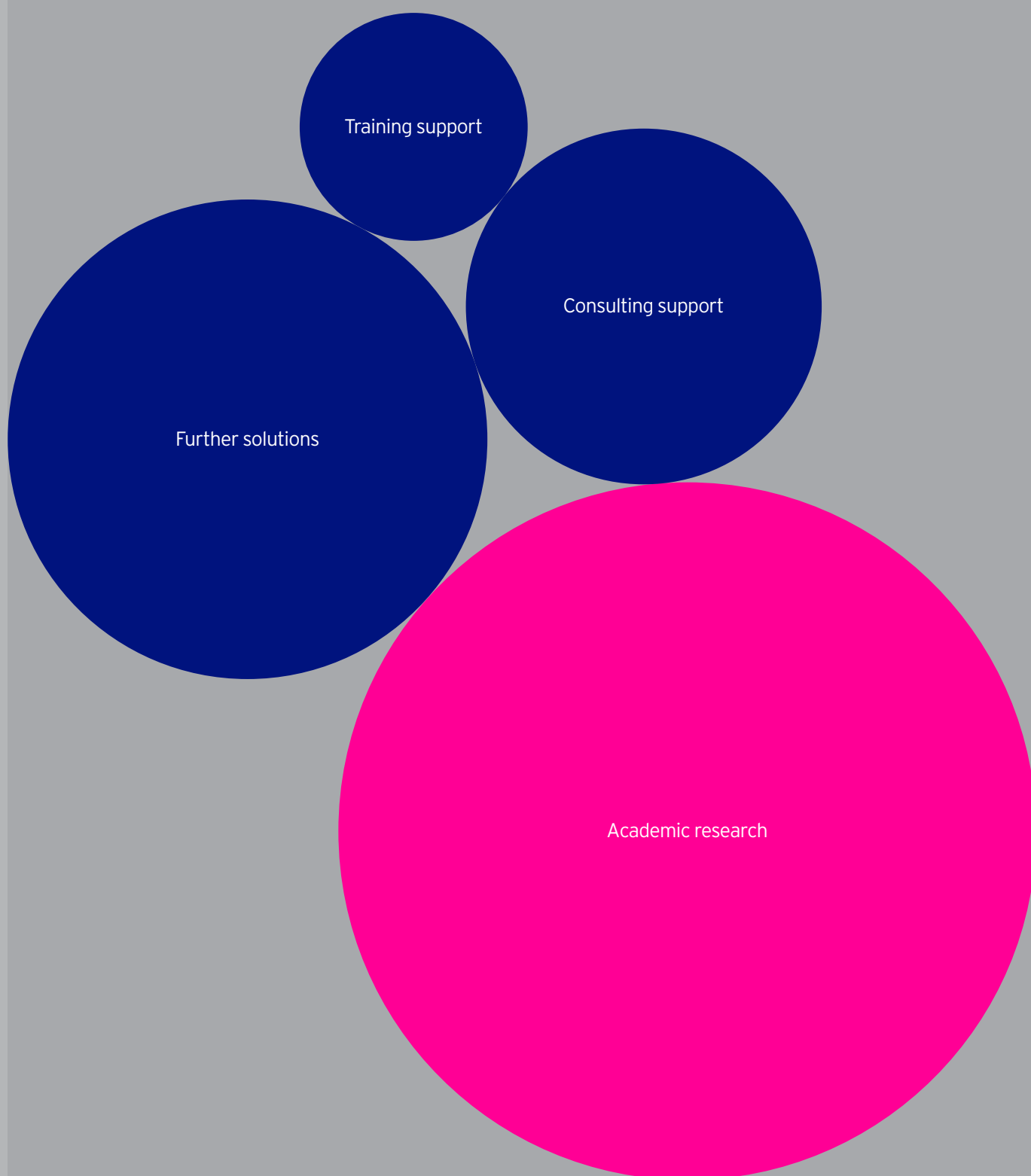
Even the non-users in our study (15) demonstrated positive perceptions towards factor investing. Approximately half of non-user respondents are currently considering factor products and 87% of them are open to factor attribution analysis on their portfolio. Overall few respondents cited a fundamental disbelief in factor investing, instead it was viewed as a natural extension to existing investment analysis. Figure 4 shows that 40% of non-users want more digestible academic research to address any concerns on factor investing. We will consider ways the industry can better support investors in the final two themes of this report.

"We are aware of the research that says factors are contributing to our returns so we would like help with analysis of our portfolio"
Pension Fund, Australia/New Zealand (ANZ)

"We just don't have a clear strategy
- I am one of several new hires working to build this strategy but we do require external support"
Sovereign, North America

Fig 4. Propositions which address concerns for wider factor usage

Academic research	40%
Further solutions	27%
Consulting support	20%
Training support	13%



First ranked citations by non-users only. Sample = 15

Theme 2

There are multiple pathways to factor products in the institutional market

While the theory of factor investing has existed for decades, the financial crisis is seen as a key initial catalyst for strategic factor adoption by institutional investor respondents. Sovereigns in Asia are moving to internal risk premium factor models to improve risk management, German insurers use smart beta ETFs for equity exposure and liquidity and UK defined contribution pension funds use factor products to manage costs. The relative importance of risk, return and cost in driving adoption depends on the factor product and the source of assets.





Low volatility

1972

Haugen and Heinz showed that low volatility stocks realised extra risk - adjusted returns

1976

Launch of the first index mutual fund

Size

1981

Banz finds that small cap stocks outperformed large cap stocks

Value

1981

Basu finds low PE stocks generate higher returns relative to high PE stocks

Invesco Quantitative Strategies

1983

Launch 1st quantitative strategies

Size and value

1993

Fama and French developed 3-factor model by adding size and value to the market factor

Momentum

1993

Jagadeesh and Titman found buying past winners and selling past losers was highly profitable

1993

First exchange traded fund (ETF) launched

1997

Carhart developed 4-factor model

2003

First smart beta ETF launched

Financial crisis

2008

Many large sovereign investors and pension funds explained that their approach changed following the financial crisis and the performance issues across asset classes and products. These institutions wanted a better understanding of exposures and correlations in their portfolio and factor investing was cited as a way to address this requirement.

1970

1980

1990

2000

The financial crisis is viewed by institutions as the initial catalyst for factor investing

The theory of factor investing and the availability of factor products span many decades. Most respondents were able to reference the original academics who pioneered these concepts in the 1970s and some have used managers with a quantitative approach in their portfolios since the 1990s. However, before the global financial crisis (GFC) in 2008 few institutions in our study actively used the term 'factor investing' or systematically considered how different factor exposures in their portfolio contributed to risk and return. Many large sovereign investors and pension funds in our study explained that their approach changed following the financial crisis and the performance issues across asset classes and products. These institutions wanted a better understanding of exposures and correlations in their portfolio and factor investing was cited as a way to address this requirement.

"During the financial crisis it became apparent that investments across classes were more correlated than we had imagined"
Sovereign, Asia

A complex approval process for the first movers into factor investing

The approval process for the first movers into factor investing following the GFC was complex and time consuming. European pension funds in our study explained that it took time to build consensus for factor allocations within their organisations. It was an iterative process between the executive and investment teams as institutions slowly built out internal expertise and improved the quality of their attribution analysis. In a couple of extreme cases it took more than three years between the initial proposal and the first investment into factor products, compared to an average of approximately 18 months across our study. The next section sets out three case studies to provide more details on the range of factor adoption journeys and drivers.

"The adoption of factor risk modelling is beyond theoretical, it is strategic and has implications for organisational structure"
Pension Fund, Europe

Sovereign respondents in Asia are following European sovereigns and shifting from asset allocation to internal risk factor models

Sovereigns in the Netherlands and Nordics are recognised as the pioneers in factor investing following the GFC. Dissatisfaction with equity market volatility and the correlation between equities and other asset classes led these sovereigns to reorganise their portfolio construction process around risk premium factors such as growth, credit, liquidity, currency and reinsurance rather than asset allocation. This reorganisation included significant investment in internal teams and a reduction in assets placed with external asset managers.

Despite being equally frustrated with poor performance across asset classes during the first three to five years post the GFC, Asian sovereigns chose not to follow their peers in Europe towards internal risk premium factor models. Asian sovereigns identified three initial barriers to adopting internal factor models. First, Asian sovereigns cited a process-driven culture which had embedded asset allocation and external active management. Second, more cautious executive teams were slow to adopt new investment concepts. Third, Asian sovereigns noted a greater focus on cost within European sovereigns (driven in part by greater transparency in reporting on expenses) which had encouraged the shift to lower cost internally managed factor portfolios.

“Sovereigns in Europe are most willing to become investment pioneers, we are more interested in robust, tested processes”
Sovereign, Asia

Successful European experiences, a growing body of academic research and the emerging markets crash were key drivers of adoption

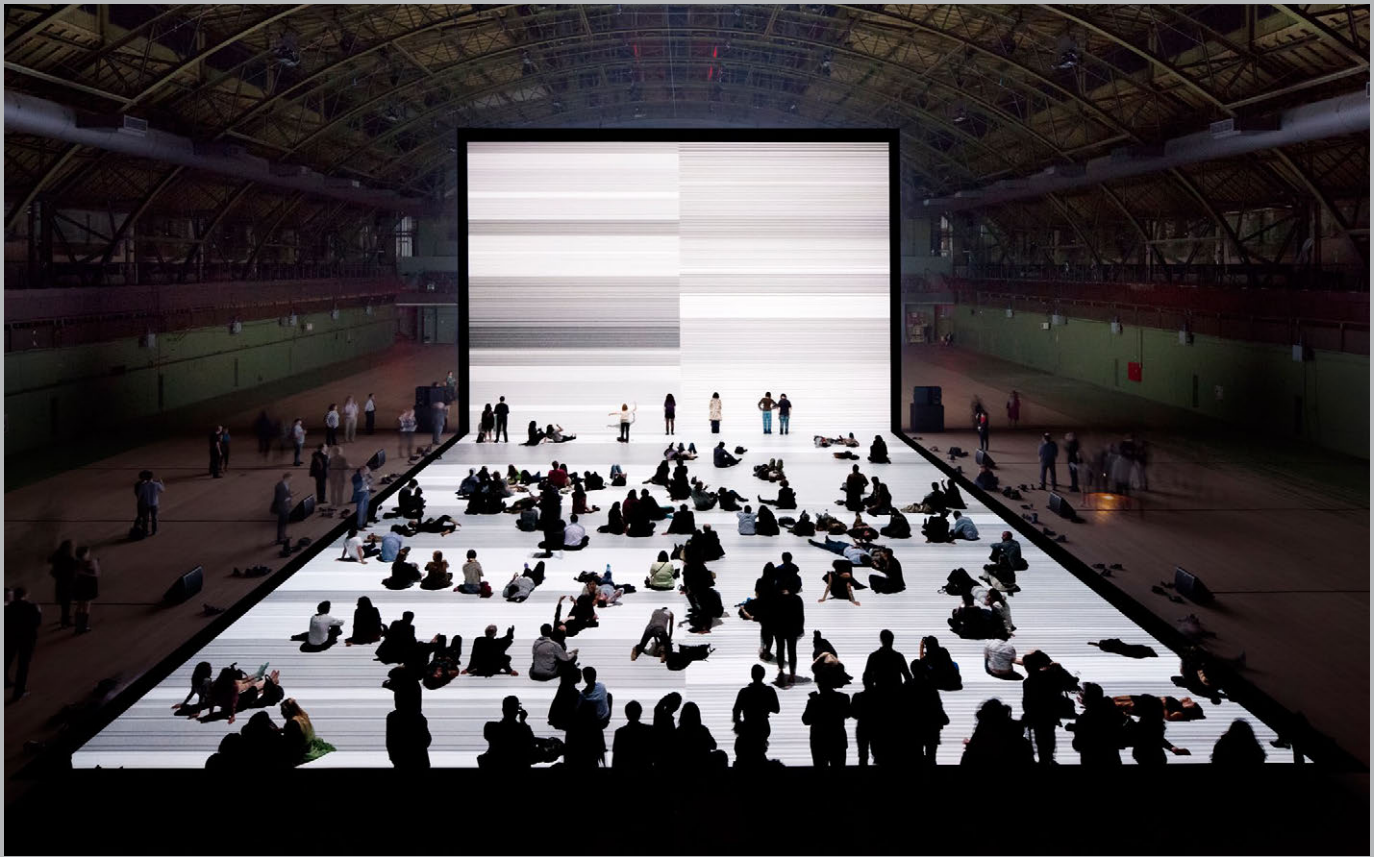
Over time these barriers have been broken down. Successful precedents in Europe were viewed as the most important driver of adoption, with respondents noting that feedback from peers was more credible than advice from asset consultants or asset managers. A greater body of supportive academic research was also important, for example Asian sovereigns cited recent papers related to back-testing as well as factor implementation and the costs of trading. Finally, participants explained that recent volatility in emerging markets and the Chinese stock market crash had helped build consensus amongst cautious executive teams for a new approach. Sovereign investors in Asia became the fastest adopters of factor products in our study, with average timelines of less than a year from proposal to initial investment compared to the average of 18 months. Respondents explained that a more streamlined decision-making process designed to respond quickly to co-investment opportunities in real estate and infrastructure had enabled them to shorten the time from proposal to investment.

In summary, the adoption of a risk premium factor approach is aligned to the strategic objective for many Asian sovereigns to increase the alignment between investment return and risk management. This trend is expected to be a challenge for existing third party fundamental active managers but positive for specialist factor managers with an ability to integrate with internal models. However, many sovereigns explained that the full impact of these changes on mandates and managers was still unknown or confidential at this stage.

“We are looking to merge our investment and risk management teams to have a clearer view of the returns and exposures of the portfolio”
Sovereign, Asia



Lucky Knot/Dragon King
Kong Bridge, Changsha, China



The Transfinite by Ryoji Ikeda.
A visual and sonic environment
where visitors are submerged in
an extreme illustration of projected
and synchronized data

Factor adoption case study 2

German insurers in our study are migrating from fundamental investments to smart beta ETFs and equity factor models to improve risk-adjusted returns

German insurers are a significant part of the German institutional market given their role in selling and investing guaranteed life and pension products for retail customers. Traditionally German insurers have invested in large investment-grade fixed income portfolios managed primarily by internal investment teams. However, the low interest rate environment has forced insurers to move up the risk spectrum. Insurers have increased credit and duration risk in their fixed income portfolios and made new investments into equities and alternatives in an attempt to achieve target returns. Respondents explained that equity investments were typically more tactical than strategic given a wide range of considerations and constraints including the mark-to-market nature of Solvency II*, local accounting requirements and the need to align to credit rating models.

"It is becoming harder to match liabilities and the outlook is extremely negative. We are adjusting our investment model to bridge the gap"
Insurer, Germany

Liquidity requirements and regulatory constraints were key drivers of factor adoption

Insurers have increasingly used smart beta ETFs to access equity market exposure. Respondents explained that they were reluctant to take the reputational risk associated with direct equity investments into individual stocks or pay higher fees for external fundamental active management. The liquidity of ETFs was also a key benefit helping insurers meet regulatory requirements or a potential increase in customer redemptions if interest rates rise. Solvency II and previous capital regulations in Germany were also cited as key drivers of equity allocations and the uptake of factor products. The increased capital charges set out in Pillar 2 Solvency II applied to more illiquid alternative investments such as real estate or infrastructure, so factor-based equity products were relatively more attractive. This is important because many other institutional investors in our study were shifting allocations towards alternatives rather than equities. Furthermore, pillar 3 Solvency II regulations increased reporting granularity and reduced disclosure times so ETFs were the preferred product vehicle.

In the future, some of the larger German insurers with dedicated equity resources explained that they were looking for a more strategic and customised solution to their equity allocations. As more of their assets continue to move from fixed income to equities there was growing interest in externally managed active quantitative strategies which could reduce cost relative to fundamental strategies and potentially reduce risk relative to smart beta ETFs. Many insurers were seeking support from local asset managers because they believed local managers had a strong understanding of the factors which drive outperformance in the German market.

"Equities are the only part of the portfolio where we can currently generate real returns, so optimising risk-adjusted returns here is our investment focus"
Insurer, Germany

*Solvency II is an EU-wide directive for the insurance industry that came into effect on 1 January 2016. Simplistically, it requires that insurers set aside enough capital to cover claims and do more to manage risk in their businesses.

Factor adoption case study 3

UK defined contribution pension funds have shifted focus from fundamental to indexing to smart beta strategies over time and are now considering active quantitative products

Private sector defined benefit pension funds remain the largest part of the UK institutional market in terms of assets. Despite scheme closures over recent decades, liabilities continue to grow as interest rates and discount rates decline. Respondents explained that factor investing was increasingly important to defined benefit schemes. Many schemes are diversifying from traditional sources of return into alternatives and factor products offer a cheaper route to diversification than traditional hedge funds or private equity products. Specialist factor managers were cited as leading this trend but more recently asset consultants have been increasingly active in promoting their own internal factor-based solutions for a range of different asset classes.

However, many respondents explained that their small but growing defined contribution scheme was a more interesting case study for factor adoption than their larger defined benefit scheme. Before 2013, most defined contribution pension plans included fundamental active funds and paid commissions to corporate advisers. However, the removal of commission following the Retail Distribution Review (RDR) and the introduction of the 75 basis point charge cap on default funds created significant pressure on costs across the entire value chain including advice, administration and asset management.

"Cost pressure means that active management is no longer feasible across the bulk of the portfolio"
Pension Fund, UK

The RDR, charge caps on default funds and stakeholder engagement have facilitated growth in smart beta products

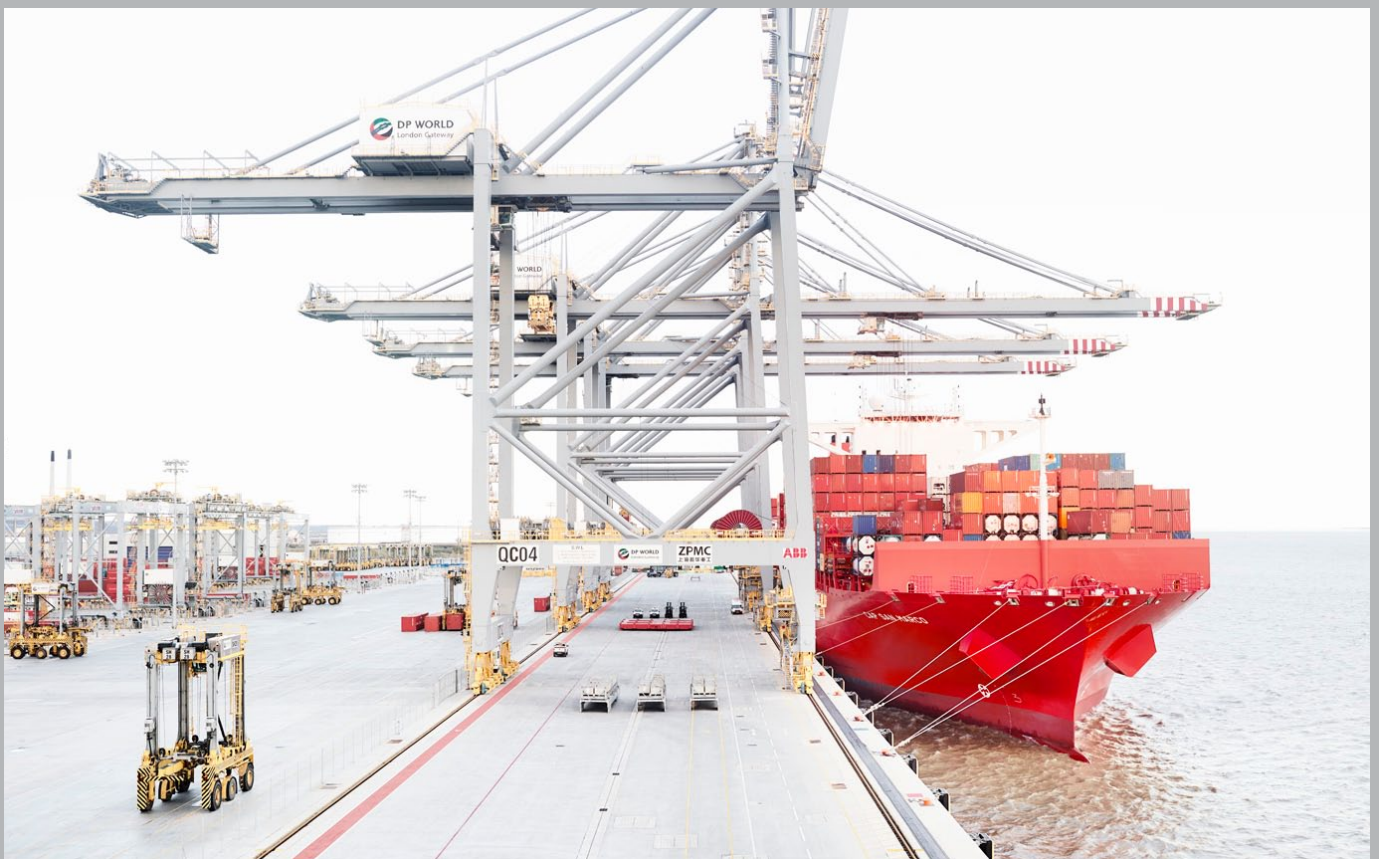
Initially these regulatory changes shifted allocations from fundamental active funds to traditional market capitalisation indexing strategies. However, assets in traditional indexing then shifted to smart beta strategies to drive up returns while keeping value chain costs below the charge cap. Respondents acknowledged that part of the shift to smart beta was driven by engagement from other stakeholders over the past two years. Some schemes cited greater engagement from trustees following the creation of IGCs (Interdependent Governance Committees) and the greater focus on cost as part of their 'value for money'. Other pension respondents cited greater engagement from employees following new Pensions Freedom regulation.

"Our performance is measured against a market cap benchmark so smart beta gave us the ability to outperform at a low price"
Pension Fund, UK

The desire for more customised solutions is increasing interest in active quantitative solutions

Larger pension scheme respondents are now considering a third strategic shift from indexing and smart beta to more customised active quantitative products. The key driver of this third shift varies depending on the profile and size of the pension scheme. Large private sector schemes want to reduce investment risk by taking a more holistic multi-factor approach to their exposures. Local government schemes want to build more sustainable, environmentally friendly solutions such as default funds with less exposure to carbon. At present allocations to active quantitative products remain low relative to smart beta and indexing but respondents expected allocations to increase significantly over time.

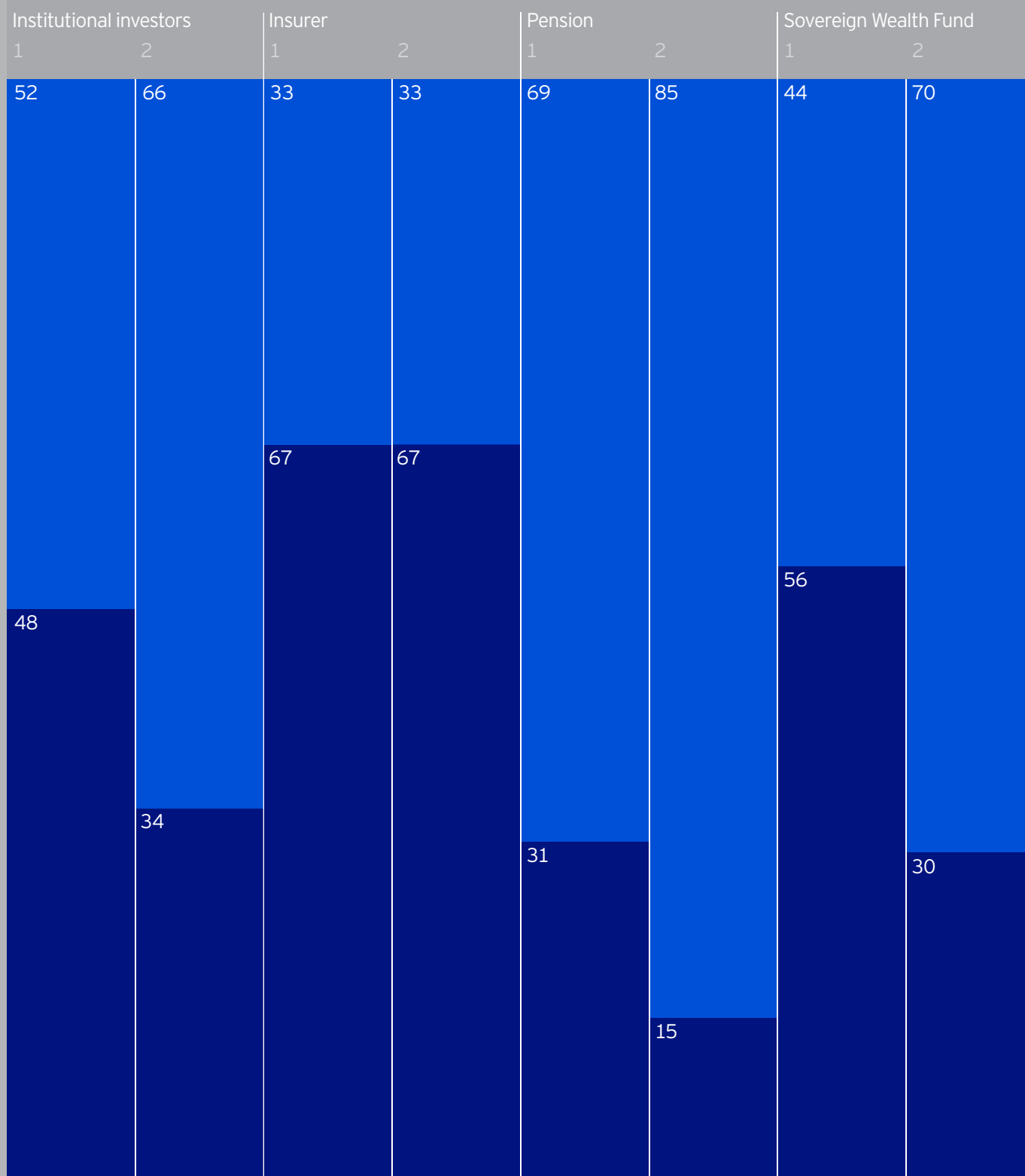
"We moved from active to passive when the charge cap came in and we are currently seeing if we can build a top down internal quant model to build factor exposures around our liabilities"
Pension Fund, UK



Cap San Marco container ship,
London Gateway Port, UK

Fig 5. First factor product (1) and most strategically important (2) factor product (%)

■ Quant strategy
■ Smart beta ETF



Institutional investors. Sample: Institutional investors = 31, 32; Insurer = 9; Pension = 13; SWF = 9, 10

Key finding 1

Active quantitative products are seen as strategically important factor investments

The case studies reconfirm that factor investing is growing in importance across institutional segments and markets. On average, institutional investors in our study now allocate assets to more than five different external managers of factor products. Many institutions started with a small allocation to a low-cost, single-factor smart beta ETF and then expanded to multi-factor active quantitative strategies. Active quantitative products are typically viewed as more recent strategic investments. For example, 52% of institutional investor respondents cited quantitative strategies as their first factor product and 66% cited a quantitative strategy as their most important factor product (see figure 5).

“Smart beta products are simpler and we need to do greater research before we invest in quantitative products”
Pension Fund, ANZ

Key finding 2

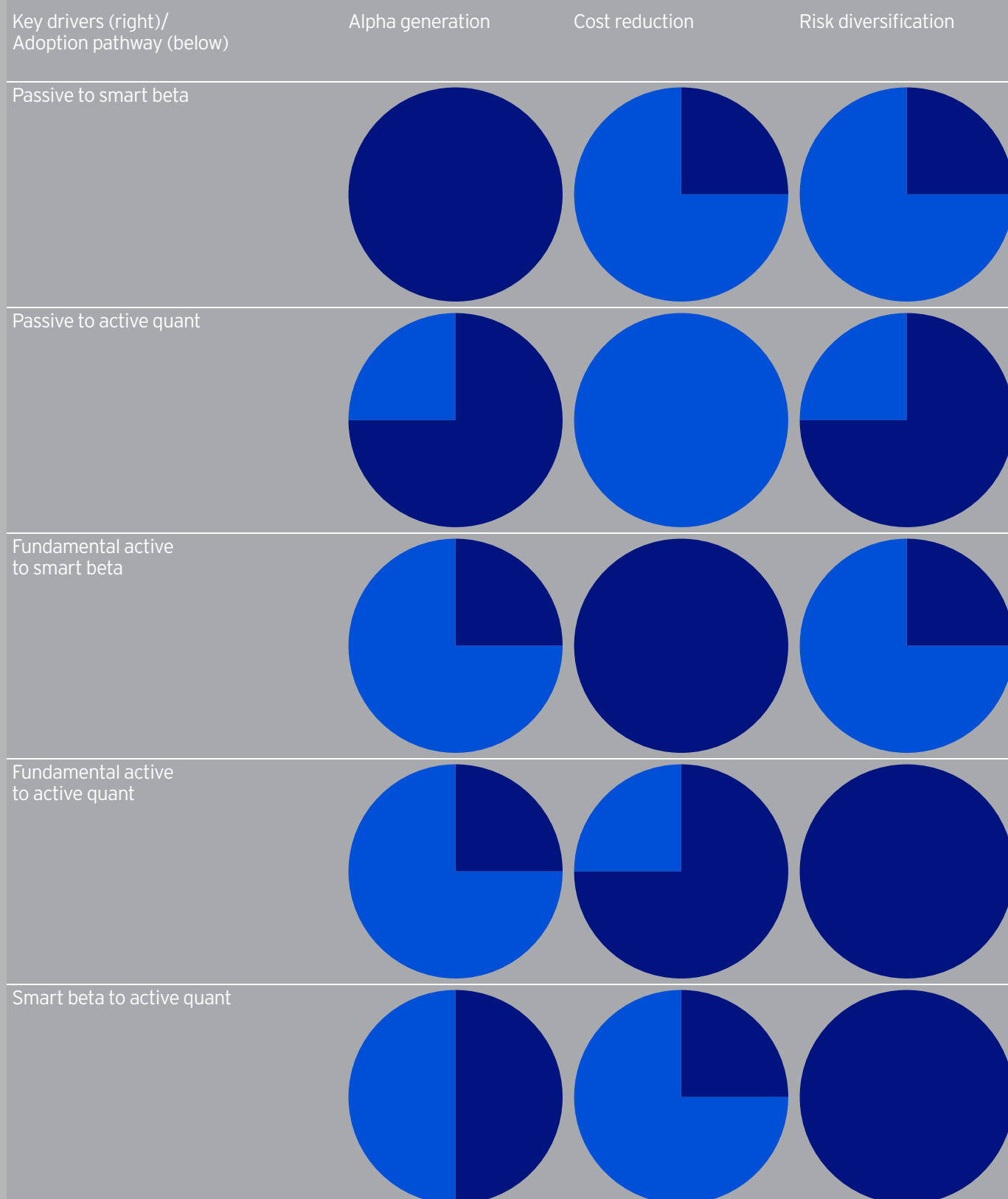
Drivers of factor adoption depend on the factor product and the source of assets

The case studies show that the importance of cost versus risk versus return varies for smart beta ETFs and active quantitative strategies. Furthermore, respondents stated that the drivers vary depending on whether the factor strategy is sourced from fundamental active or passive assets. For example, a shift from active fundamental to active quantitative products can be driven by improved risk diversification from a better understanding of factor exposures and cost reduction from lower management fees. In contrast a shift from passive to smart beta is driven by alpha generation as smart beta products are designed to outperform traditional indices. Figure 6 illustrates the relative importance of cost, risk and return depending on factor product and source of assets. We trust the case studies and the schematic in figure 6 provide the industry with more detail and structure around the drivers of factor adoption in the institutional market.

"Our investment strategy is driven by optimising risk, return and cost"
Sovereign, Asia

Fig 6. Drivers of factor investing for different adoption pathways

■ Relative importance



Theme 3*

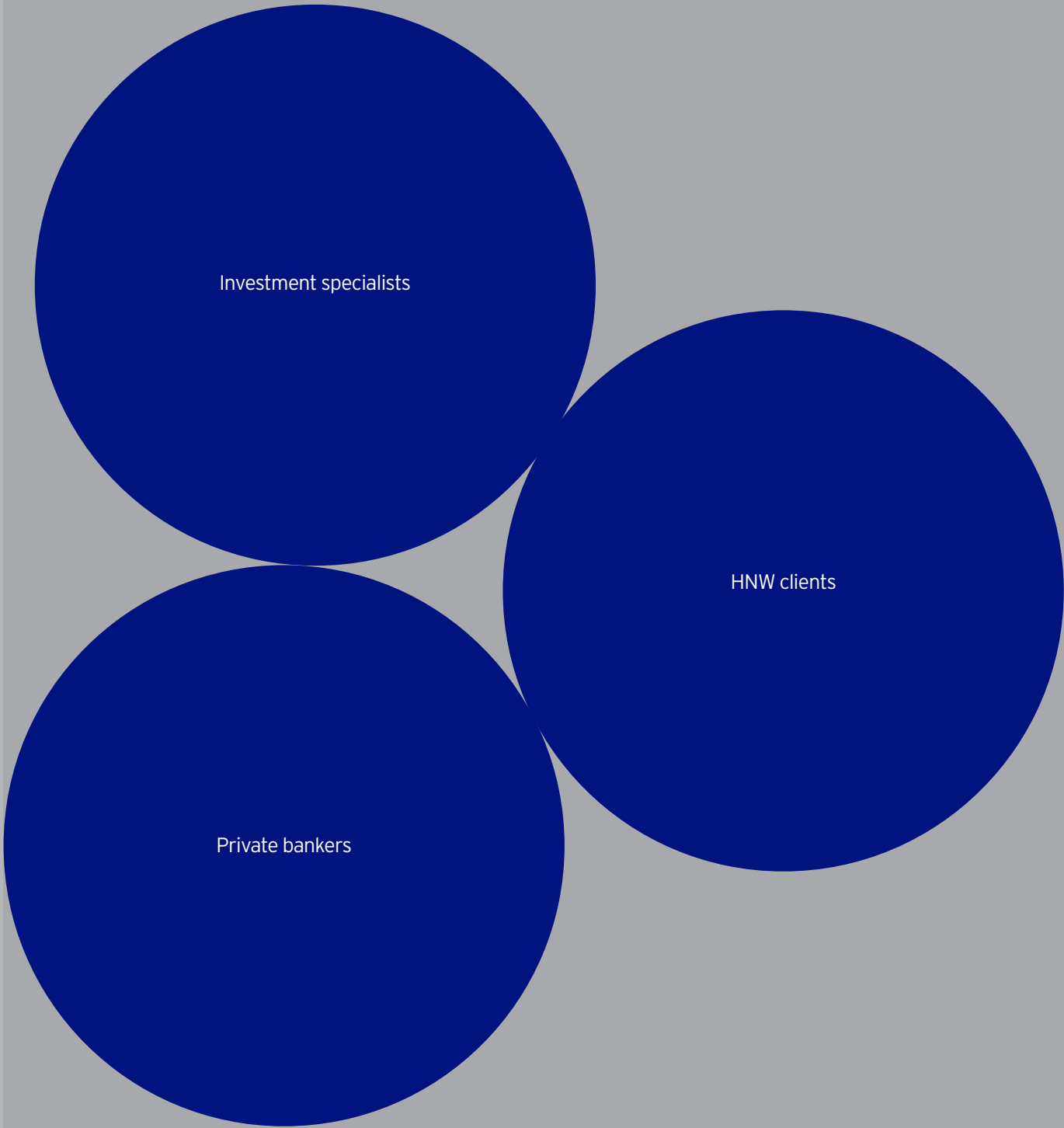
Private banks use factor products in a variety of ways and believe factor products are an important part of evolving their investment propositions

Regulation, growing financial literacy and online direct-to-customer platforms are driving private banks to change their investment proposition. The changes are supportive of a range of factor investing products and implementations across core and satellite parts of client portfolios. Private banks want asset managers to develop more tailored factor propositions for different implementations and more client-friendly marketing materials.

*Throughout this theme, graphics labelled 'institutional investors' include asset consultant responses.







For illustrative purposes only.

Private banks have three stakeholder groups: investment specialists, private bankers and HNW clients

This theme considers factor adoption amongst private banks based on fieldwork across North America, Europe and Asia. The private banking channel is very different to the institutional investors covered in the previous theme. The bank is an intermediary to an underlying high net worth client rather than the ultimate asset owner. Furthermore, there are investment specialists who build model portfolios and preferred fund lists and then an underlying private banker responsible for managing the client relationship. Private bankers advise across a broad range of services beyond investments including personal financial planning, tax planning, estate and succession planning, debt, philanthropy and business advice. When we analyse factor adoption, we need to consider the perspectives of these three stakeholder groups: investment specialists, private bankers and their HNW clients.

“The primary focus of our advisers is client servicing. Investment returns are secondary”
Private Bank, Europe

Advice regulation, growing financial literacy and online direct-to-consumer platforms are challenging the traditional private banking model for investments

Private banks have faced significant regulatory scrutiny over the past decade. For example, regulators in most major wealth management markets have introduced regulation to ban commissions or increase fee transparency on investment products. At the same time, HNW customers are becoming more financially aware of low-cost products such as ETFs and are more price sensitive in a low return environment. Respondents explained that many private banking clients, especially in North America, had significant portfolios with direct-to-customer online platforms and further loss of assets and customers to online platforms was a key concern.

Business model changes are supportive of factor adoption among private banks

Private banks are changing their business models in response to advice regulation, growing customer literacy and the emergence of online platforms and ETFs. We would summarise these changes under three high-level initiatives. First, greater emphasis from private bankers on financial planning such as managing client goals, lifetime cashflow planning and outcome-based investment solutions rather than on outperformance of the investment portfolio. Second, more consistent, centralised investment propositions controlled by investment specialists and focused on risk-adjusted returns rather than private bankers picking funds for clients. Third, greater use of ETFs, indexing, smart beta and active quantitative products alongside fundamental active management to bring down investment costs. Each private bank had a slightly different emphasis but most interviews referenced at least one of these initiatives. Private banks have approached factor investing in a number of ways; we've set out four core approaches.

“We are looking at how we can manage clients' money in a consistent and tested way”
Private Bank, Europe

Approach 1: Active quantitative products are not differentiated from fundamental products

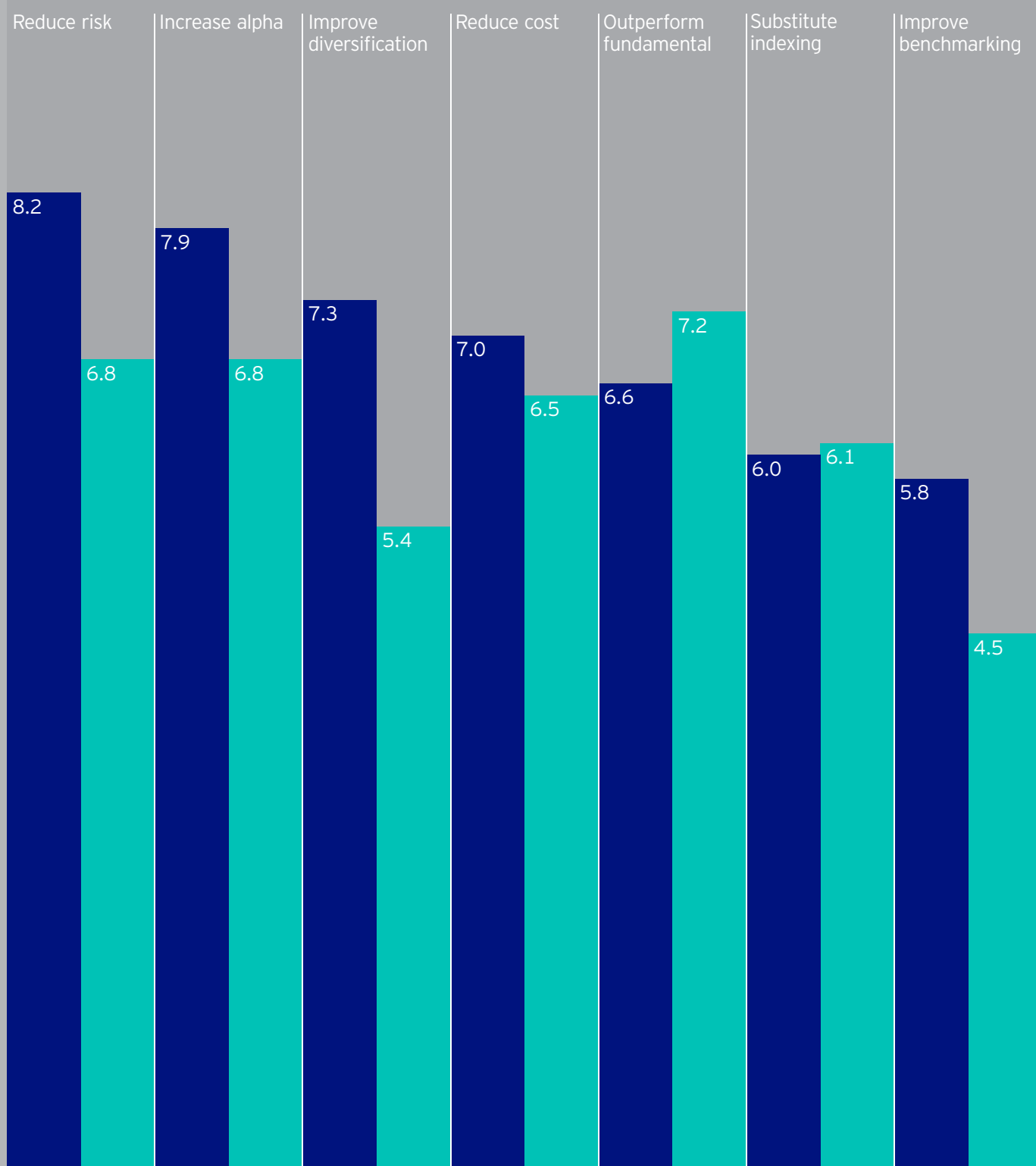
Respondents at private banks explained that they did not distinguish between fundamental and active quantitative strategies. All funds were assessed based on standard investment factors such as long-term performance, volatility, tracking error and quality/consistency of the investment process. Investment specialists in private banking use screening tools such as Morningstar to create shortlists for model portfolios and for private bankers and clients to select from. Respondents explained that many active quantitative products passed their screening and have sat on private bank fund shortlists for many years. The importance of outperforming fundamental strategies in selecting factor products is highlighted in figure 7. Outperforming is the most important selection criterion for private banks, rated on average at 7.2 out of 10, while the same criterion is only ranked fifth in order of importance in the institutional channel.

This implementation of factor products by private banks is important for two reasons. First, factor funds are sold alongside fundamental funds with limited appreciation from the private banker or the HNW client of the difference between factor and fundamental funds. Second, these fund sales account for the majority of private banking assets placed into active quantitative factor products so the percentage of factor assets in a client portfolio is significantly higher than private bankers estimate. As private banking models evolve to focus more on financial planning and less on investment returns, we expect the importance of outperforming fundamental to fall relative to risk and diversification drivers.

"We don't hold factor products, but we are interested in the factor biases of fundamental managers and their factor-based active funds"
Private Bank, Asia

Fig 7. Rationale for factor investing by client segment

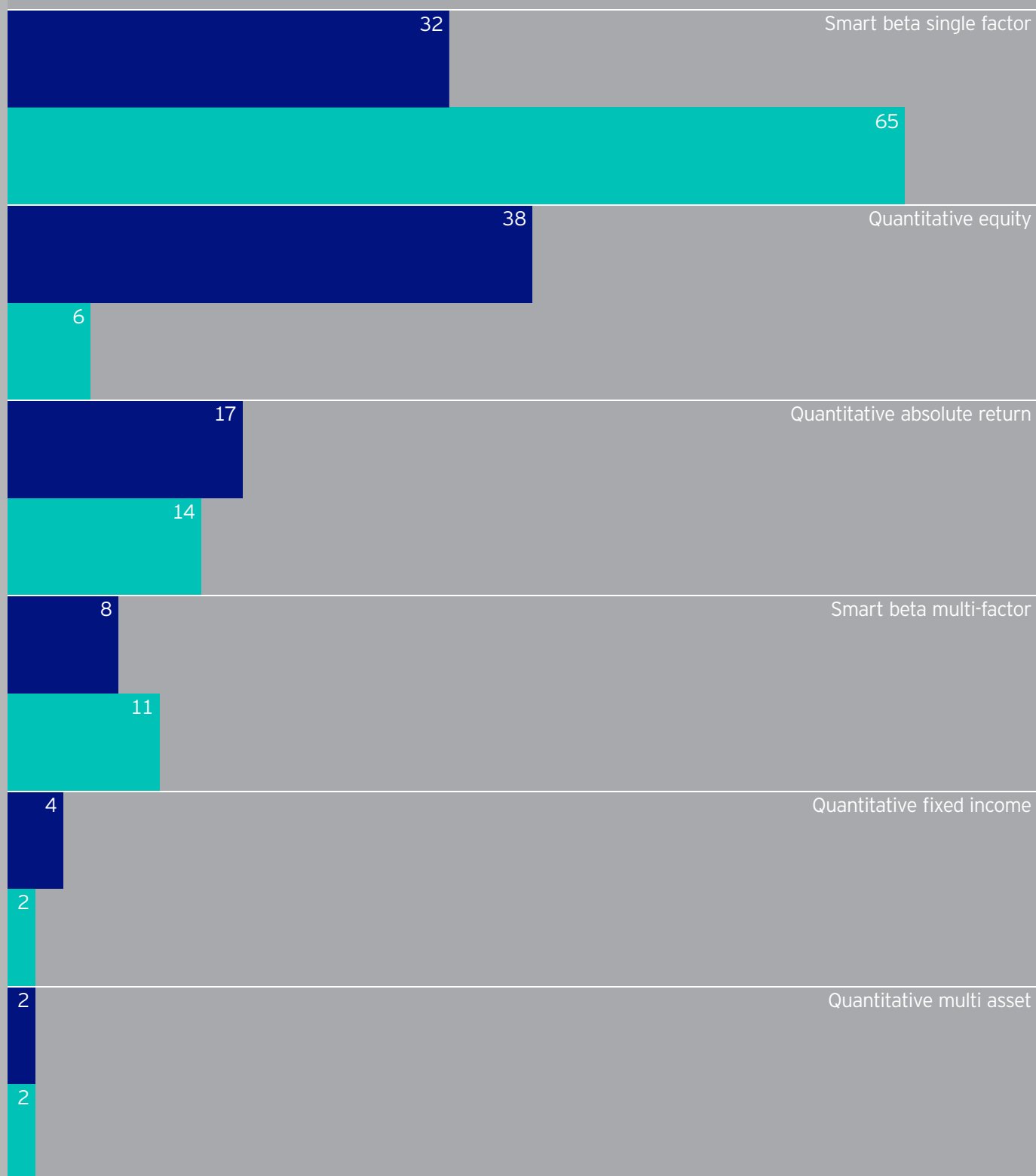
■ Institutional investors
■ Private banks



Sample: Institutional = 40, Private bank = 11
Rating on a scale of 1-10 where 10 is the most important

Fig 8. Factor product allocations (%)

■ Institutional investors
■ Private banks



Sample: Institutional = 39, Private bank = 10

Approach 2: Using smart beta ETFs as a vehicle for thematic investing within the satellite portfolio

We identified the trend towards more centralised model portfolios to reduce risk and focus customers on outcomes. These models form the core part of a HNW client portfolio but there remains significant scope for satellite investments because HNW (and especially ultra HNW) clients want to be involved in the decision-making process. Historically satellite investments were individual stocks but respondents explained that smart beta ETFs are now increasingly used as thematic investments in the satellite portfolio. For example, clients are able to invest in ethical or sector-focused factor funds in the satellite portfolio, according to their preferences. Thematic factor products are viewed as an effective tool for private bankers to engage clients and add value on key investment trends and novel investment concepts, helping to mitigate the risk of clients going direct.

This implementation of factor products accounts for the majority of existing factor assets via private banks. Figure 8 shows that single factor smart beta ETFs account for more than 60% of all factor-based private banking assets in our study and figure 9 shows that small cap ETFs are the most popular underlying smart beta product cited in more than 30% of private bank interviews. The high allocations to single factor smart beta products by private banks in figure 8 contrasts with institutional portfolios where quantitative products account for the majority of assets.

“If a client wants a weighting to a single factor in the portfolio, the easiest way for us to incorporate this is to add a single factor product as a satellite”
Private Bank, Asia

“We do not see our ETFs as ‘smart beta’ but we like being able to invest in small cap and low volatility stock in a cheap tax wrapper”
Private Bank, North America

Approach 3: Growth in smart beta to reduce costs and drive assets into internal asset managers

As we discussed earlier in the theme, many private banks have been moving into indexing and smart beta strategies within their core portfolios to reduce overall portfolio costs and improve client retention. The extent to which smart beta and indexing had gained traction in core portfolios varied by region. European private banks have been quick to incorporate indexing strategies, especially in the UK where regulation has banned commission. However, the biggest difference related to private banks with internal asset management divisions with smart beta offerings. These private banks allocated significantly more assets to smart beta products than private banks with an internal manager focused on fundamental active and private banks without an internal manager. Looking across all our private bank discussions, it was evident that private banks with internal smart beta managers had received significantly more support and engagement on how to effectively implement factor investing with clients.

“We have a well-developed smart beta product suite which we are able to access in the client portfolio”
Private Bank, Asia

Approach 4: Active quantitative products as lower cost alternatives to hedge funds

We referenced the role of active quantitative products as alternatives to hedge funds in the institutional theme and this same theme is relevant for private banks. Quantitative absolute return funds were the second most commonly cited factor product by private banks. Respondents explained that these products typically offered hedge fund returns potential and diversification benefits at significantly lower costs. Critically this story resonated strongly with underlying private bankers who were able to explain the benefits to their clients.

Generally, the shift to factor-based liquid alternatives was greatest amongst US private banks. European and Asian banks allocated a lower percentage of assets to liquid alternatives and a lower percentage to factor products within this asset class. However, European private banks expected to significantly increase liquid alternative allocations, in part to diversify from traditional asset classes and in part in response to recent liquidity issues with property funds.

Emerging interest in multi-factor solutions within centralised model portfolios

In the previous four factor approaches, there was no systematic assessment of factor exposures within client portfolios. A small number of investment specialists indicated interest in a holistic understanding of factor exposures within their centralised models. As investment specialists gain more control over client portfolio design, respondents planned to conduct this type of analysis in partnership with asset managers. There were significant concerns that fundamental active portfolios were heavily exposed to specific factors and interest in using multi-factor products to mitigate risk and reduce costs.

“We are reviewing our model portfolios and seeing if we can rebase them around factors, but this is more of a risk management exercise”
Private Bank, Europe

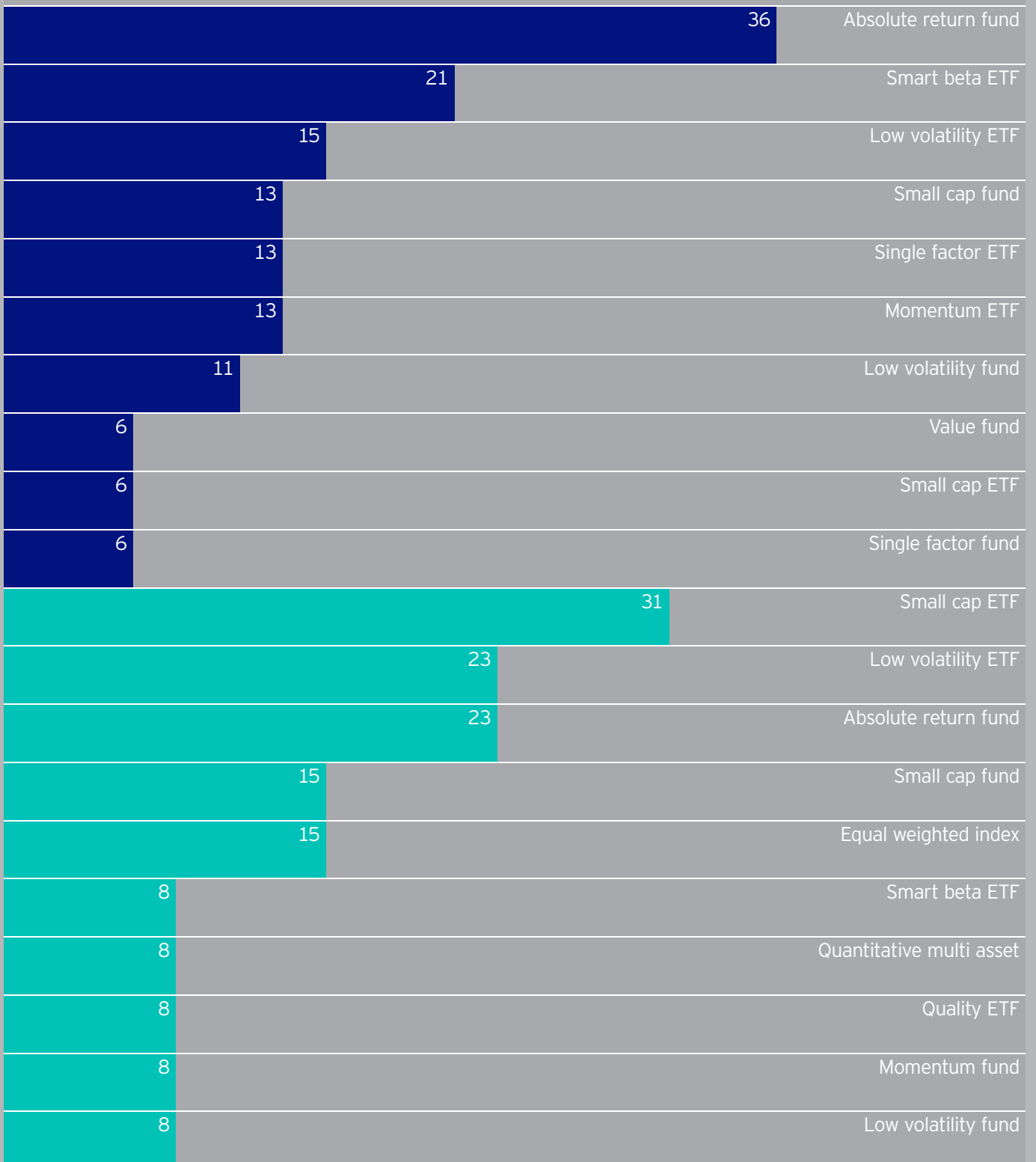
Private banks seeking more tailored factor propositions from asset managers and more client-friendly marketing materials

Private banks highlighted that asset managers were quick to pitch factor products or talk about the theory of factor investing but slow to understand their requirements. Respondents want factor propositions to support their business model changes and align to the implementations we have discussed in this theme. For example, private banks were interested in multi-factor income solutions which support their strategic focus on client outcomes. Finally, there was demand for asset managers to demonstrate they understand the three levels of decision-making within private banks by developing tailored training programmes for private bankers and marketing materials which can be used with HNW clients.

“We have come across few factor products which are designed with retail customer needs in mind”
Private Bank, North America

Fig 9. Unprompted factor product awareness (%)

■ Institutional investors
■ Private banks



Sample: Institutional = 47, Private bank = 13

Theme 4

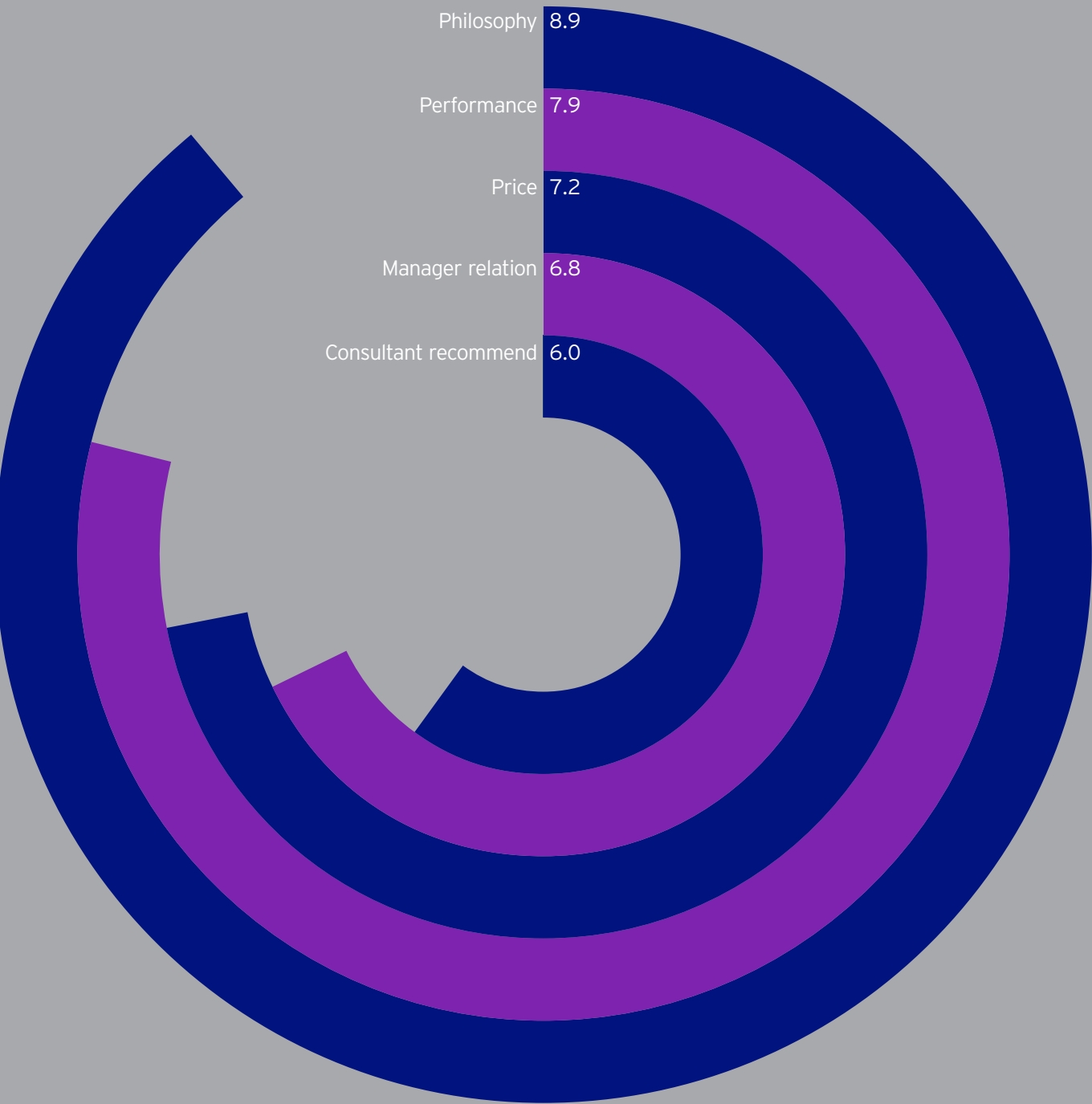
Investors are seeking greater control over their factor investments and are looking for more effective support from the industry to help build internal expertise

Many private banks and institutional investors want to build more strategic, internally managed equities or across asset classes which are managed internally. They are seeking support from third parties but are concerned by product bias amongst asset managers and the lack of practical experience amongst academics. There is an opportunity for asset managers to support investors by adopting a more consultative, client-centric approach.





Fig 10. Relative importance of different criteria for selecting a factor-based manager



Factor users only. Sample = 48. Rating on a scale of 1-10 where 10 is the most important

The industry has been effective in building factor products but needs to evolve to support investors with more strategic implementations

During previous themes we have described a variety of factor products and implementations. Overall, institutional investors and private bank respondents are satisfied with the quality and breadth of factor products within equities. Furthermore, figure 10 shows that where products are selected based on philosophy, defined by respondents as the quality of the research process and methodology underlying specific factor products, the emphasis on quality rather than price or performance is important for the sustainability of factor investing. An industry based on performance will likely struggle if performance drops and an industry based on price may become commoditised and reward a small number of scale players.

The challenge for the industry is that institutions and private banks are now focusing less on off-the-shelf factor products and more on strategic factor models which explain all of their factor exposures within equities or across asset classes. This theme explores opportunities and challenges for industry participants to respond to these more strategic needs. We will consider core parts of the factor investing value chain including institutional investors, private banks, consultants, academics and managers.

“Factor products tend to be very technical – a lot of time is spent working out whether they are relevant to our aims”
Insurer, Europe

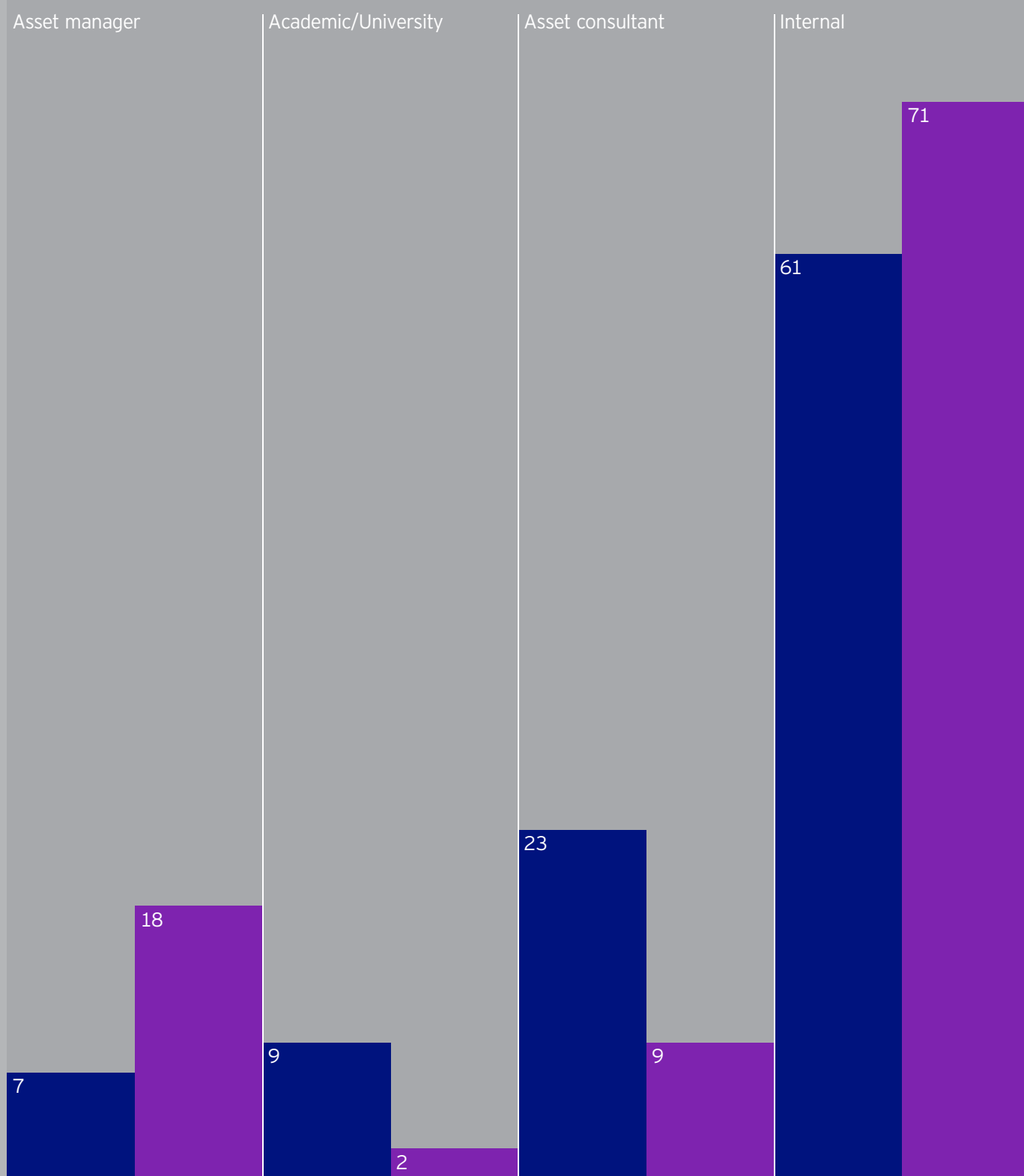
A strong preference for internal control over factor models

Institutional investors and private banks cited themselves as the most influential institution in their decision to invest in factor products. They also identified their own organisation as best placed to assess and manage factor investments. Figure 11 shows that 61% of respondents believe their organisations are best placed to assess the role of factors and 71% believe their organisations are best placed to manage factors. This finding is a critical point for the industry to accept and respond to. Institutions want a holistic view of exposures within equities or across asset classes. Furthermore, they want to build and manage factors which align to their liabilities and their investment objectives.

"No external party is close enough to our liabilities to understand how to build the factor model"
Pension Fund, ANZ

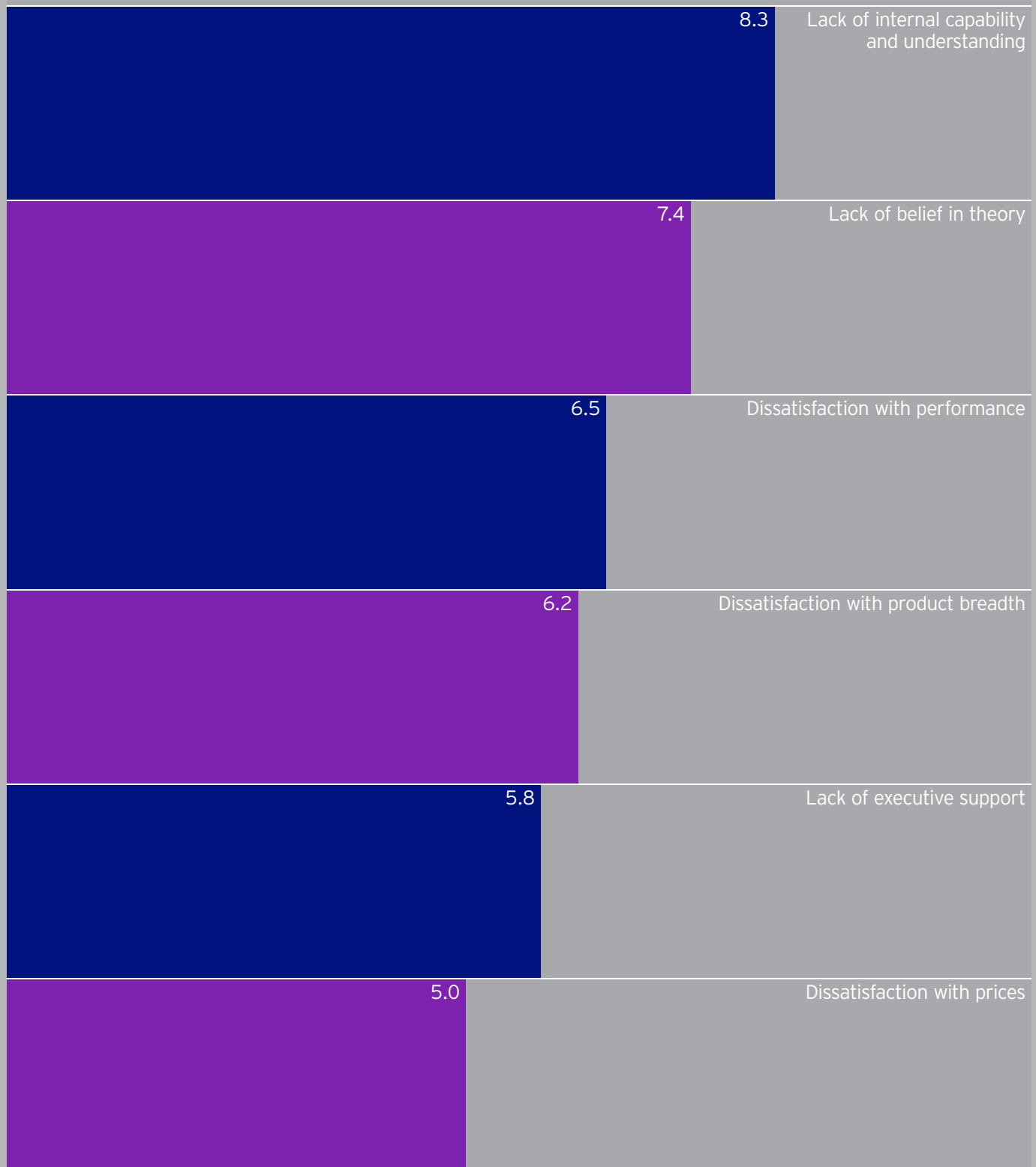
Fig 11. Best institution to assess and manage factor investments (%)

■ Assessing role
■ Managing factor



Excluding asset consultants. Sample = 57

Fig 12. Barriers to first factor investment



Factor users only. Sample = 51. Rating on a scale of 1-10 where 1 = no barrier and 10 = highest barrier

Recognition that factor expertise is the key barrier to greater adoption

The desire to manage factors internally leads directly to the key barrier to factor adoption. A lack of internal capability was cited as the greatest adoption barrier with a rating of 8.3 out of 10 in terms of importance in figure 12, significantly higher than ratings for other barriers such as a lack of belief in the theory of factor investing. A number of large institutional investors in our study were in the middle of a major recruitment drive to build internal capability in order to develop internal factor models. However, many smaller institutional investors acknowledged that a lack of resources challenges their ability to build internal capability. There was consensus that consultants, academics and managers all had important roles to play in helping institutions with their factor aspirations if they were able to overcome key challenges. For certain institutions with strong internal capability, organisational structure was also cited as an internal barrier to adoption. Some respondents explained that investment, risk and strategy teams operate in silos which struggled to collaborate while other respondents explained a new organisational structure would be required to take a portfolio-level approach to factors. Respondents also noted that the development of internal capability would help address other concerns with factor investing, such as belief in the theory of factor investing and the lack of executive support. Furthermore, the dissatisfaction with factor product performance (which rated on average at 6.5 out of 10 in figure 12) frequently referred to the performance of factor products during the global financial crisis.

"We cannot justify the expansion of our investment team despite our need for a more sophisticated investment strategy"
Pension Fund, Europe

Investors are concerned by the potential product bias of asset managers

There was negative sentiment from institutional investors and private banks towards asset managers and their efforts to support factor adoption. Respondents felt that asset managers pitched their factor products and philosophies with limited effort to understand investor needs and objectives. Interestingly, none of the sovereign investors in our study who have migrated to internal risk premium models cited asset manager support during this transition. Furthermore, few private banks felt asset managers really understood the different ways that factor products are positioned to their clients by private bankers. Respondents also felt that asset managers had created confusion around factor terminology and concepts in an effort to shape the debate and promote their own agenda; and there was strong demand for more objective thought leadership. Only a handful of asset managers achieved positive citations around their consultative approach or their client-centric approach to product development.

"Certain managers base their entire research unit around their product suite. We would be more interested if their research were independent"
Pension Fund, North America

Most asset consultants have prioritised development of factor products

Many investors explained that consultants should be well positioned to be the natural partner for an institution looking to develop a strategic factor-based approach, referencing their experience supporting institutions with asset liability models as an example. Many smaller institutional investors looking to replicate the approach taken by large institutional investors wanted support from consultants in completing attribution analysis across their portfolio, agreeing strategic factor allocations and identifying the right internal roles and responsibilities related to factor investing. However, respondents also explained that large institutional investors, particularly sovereign wealth funds, had developed factor expertise with academics independently of consultants. Many institutions

were positive on the quality of internal factor products designed by consultants but explained that these products did not support them in their objectives of truly understanding this investment approach and further supporting the development of their investment expertise. These perceptions of consultants are broadly consistent with our findings from direct discussions with consultants. Global consultants have emphasised the inclusion of factor based strategies in equity portfolios and in liquid alternative strategies rather than advisory work considering factor exposure at the total portfolio level, particularly for smaller institutional investors. Global consultants offering outsourced CIO/fiduciary management services have identified liquid alternatives including absolute return and fund of hedge funds as the most attractive asset class for them to develop products/strategies for clients.

"We are building internal expertise to manage our quantitative risk model but we want the assistance of third parties to help in its design"
Sovereign, Asia

Academic institutions struggle to translate theory into practice and are at risk of losing their best staff to blended roles within the industry

Academic institutions are well respected and recognised within the field of factor investing, especially within equities where the bulk of academic research has focused. However only 9% of respondents cited academic institutions as best placed to assess the role of factors within their portfolio. Respondents explained that academics were able to add a theoretical basis to their internal factor models but faced two strategic challenges. First, academic researchers often overlook the practical challenges of managing a factor portfolio, such as trading costs, in part because few professors have first-hand asset management experience. Second, there were concerns that the best academics are being hired by investors or asset managers, reducing the availability of objective research from leading individuals. Looking forward, institutional investors expressed more interest in hiring successful academics into an internal investment team or sponsoring a specific piece of work than forming a strategic partnership with an academic institution. There was consensus that the industry is moving to a blended practitioner-academic model where leading academics operate within institutional investors, consultants or asset managers rather than within independent institutions.

"We like academic research but there needs to be some grounding in asset management experience, otherwise the research is impractical"
Pension Fund, Europe

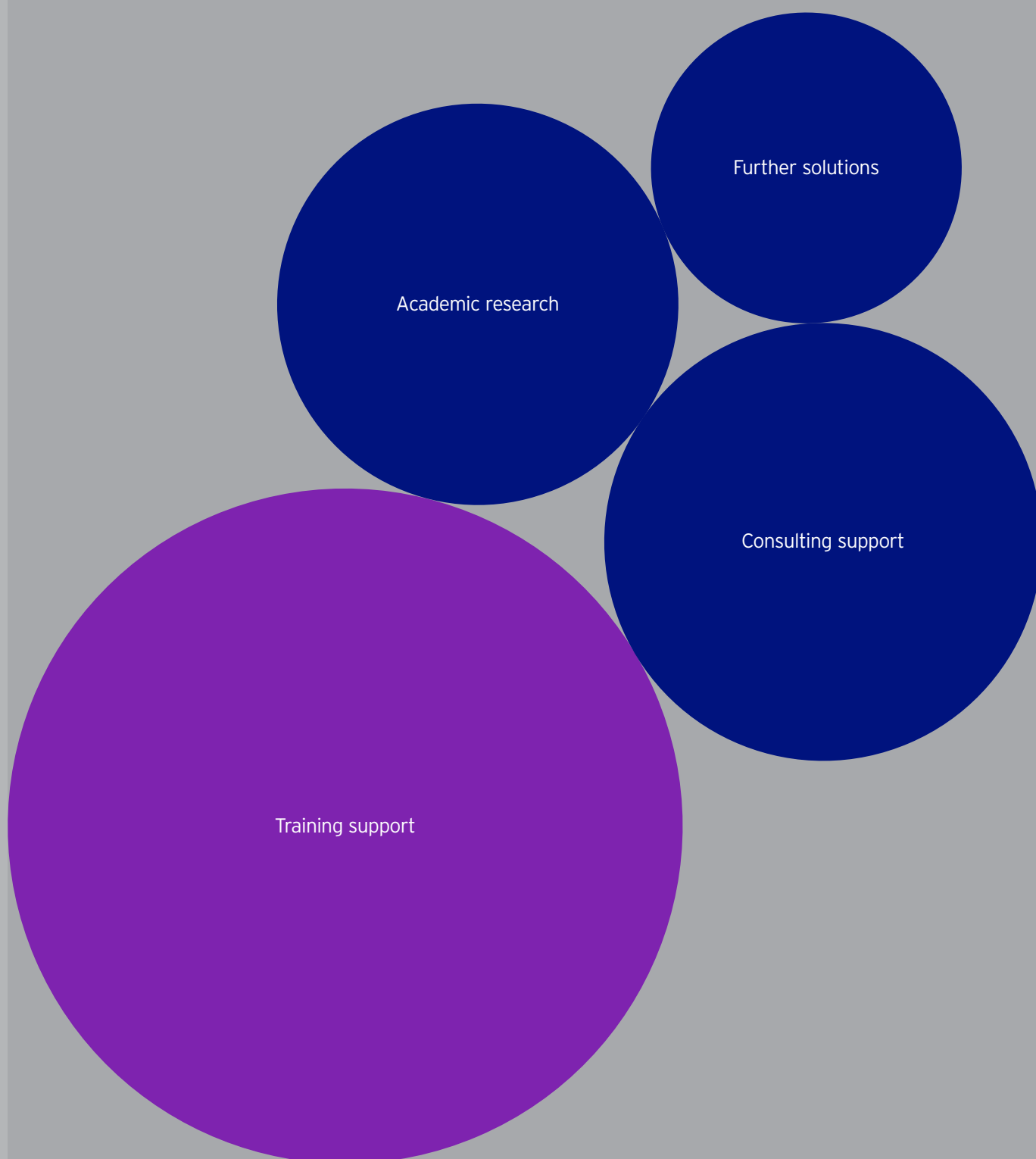
An opportunity for asset managers to deliver a more consultative approach

While institutions want to control their factor investments they explicitly requested support from the wider asset management industry. Respondents recognised that many asset managers have long track records in factor investing and experience identifying stocks and executing factor strategies. 37% and 24% of respondents cited training support and wider consulting advice respectively as the most effective factor industry propositions. Figure 13 shows that at this point in the institutional investor journey towards factor investing, training support and consulting advice are viewed as more important than further academic research or new product solutions in driving factor uptake. Certain larger firms and consultants felt smaller institutions were unrealistic in their desire to assess and manage factors. There was consensus that a new wave of factor partnerships between institutions and managers would take off once institutional investors reset their expectations and asset managers and consultants developed a more consultative approach. There was also consensus that a greater separation between assessing and managing factors would emerge as institutional investors realised they can retain control while outsourcing the strategy execution.

"We have no issues about working more closely with asset managers as long as they consider our needs"
Pension Fund, North America

Fig 13. Most effective industry proposition to address factor concerns

Training support	37%
Consulting support	24%
Academic research	22%
Further solutions	17%



Factor users only. Sample = 51

Theme 5

The outlook for factor investing is attractive with expected growth in customised active quantitative, fixed income and liquid alternatives

Respondents expect accelerated growth in factor allocations over the next five years. This growth is underpinned by demand for multi-factor quantitative strategies, internal factor models and products for fixed income and liquid alternatives. Success will depend on the ability of asset managers to support investors with more tailored propositions.





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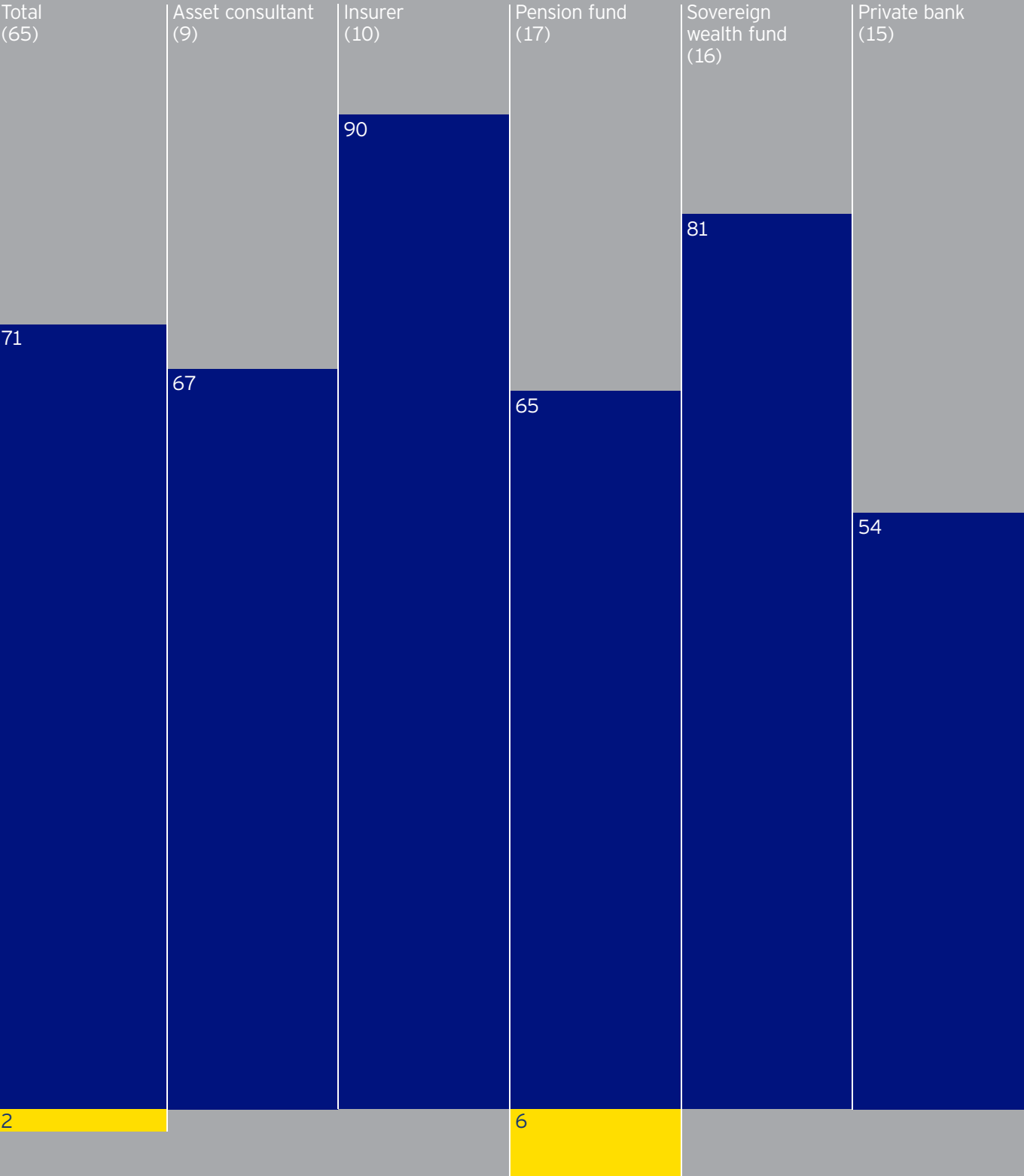
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Fig 14. Anticipated directional change in factor allocations in five years' time (%)

■ Increase
■ Decrease



Sample in brackets. All respondents

A strong growth outlook for factor allocations over the next five years

This theme considers the outlook for factor investing and the implications for the industry. The headline message is growth. Figure 14 shows that 71% of respondents expect to increase factor product allocations in the future.

Furthermore, respondents across our study expect factor products to account for 14% of their portfolio in five years' time, nearly doubling from existing levels. Many respondents explained that they had made small allocations to date as part of an initial trial period for factor investing. As they develop internal expertise and improve their understanding of performance drivers, they plan to increase their allocations to factor products.

"Having developed experience through our small factor exposure we are now looking to build out the proposition further"
Pension Fund, ANZ

Growing demand for multi-factor quantitative strategies

The positive growth outlook stretched across insurers, pension funds, sovereign investors, consultants and private banks with insurance companies predicting the greatest increase in factor allocations based on greater use of active quantitative strategies as outlined in theme 2. Many respondent institutions currently hold a small number of standalone single factor products but they plan to expand into more factors or into multi-factor products. Figure 15 shows that 60% of respondents expect quantitative strategies to grow faster than smart beta ETFs, supporting the forecast growth in more multi-factor quantitative strategies. Respondents explained that more customised multi-factor solutions were a logical extension from single factor products as respondents improved their understanding of factor exposures across their broader portfolio. 33% of respondents expected fastest growth in smart beta products notably among private banks and firms not currently using factor products.

"Now that we are growing experience of managing single factor products, we are working to incorporate them into one model"
Insurer, ANZ

Fig 15. Respondent perceptions of fastest growing factor proposition

Quant strategy	60%
Smart beta	32%
Neither	8%

Quant strategy

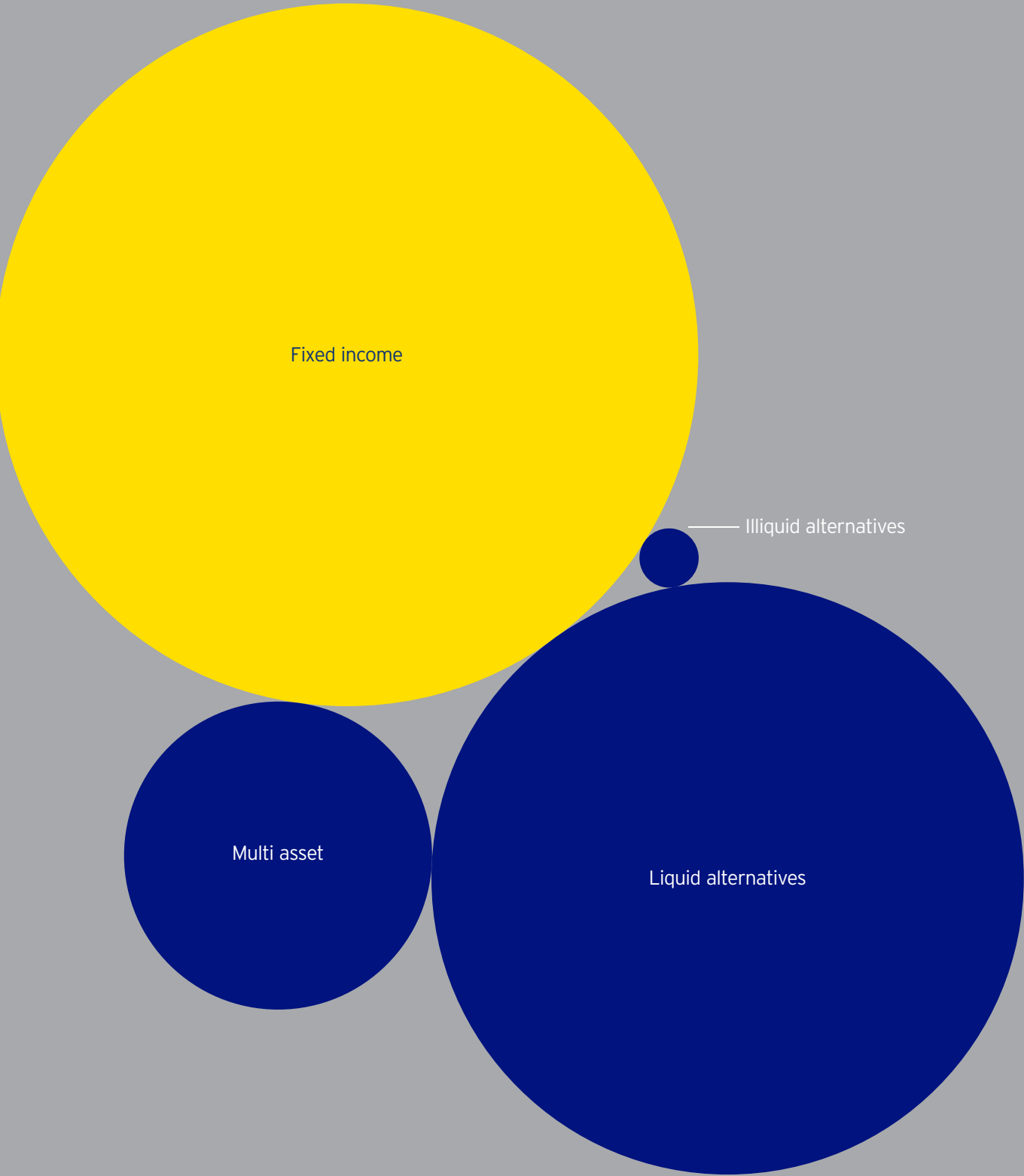
Smart beta

Neither

All respondents. Sample = 66

Fig 16. Applicability of the theory of factor investing to different asset classes

Fixed income	61%
Liquid alternatives	50%
Multi asset	26%
Illiquid alternatives	5%



All respondents. Sample = 66

Strong interest in factor products for fixed income and liquid alternatives

The theory of factor investing is significantly more developed within equities than in other asset classes. Respondents with large factor allocations in equities were particularly frustrated by the lack of research in fixed income. Some respondents acknowledged recent efforts from asset managers but expected that it would take time for the industry to reach consensus on the best solutions. Overall 61% of respondents felt the theory of factor investing could be applied to fixed income. There was strong demand for fixed income factor products with this being supported by qualitative feedback on the high cost of fundamental active fixed income strategies given the low return environment. However, respondents also recognised product development challenges, notably that there was no obvious equivalent benchmark to the market capitalisation indices in equities.

Respondents were also positive on the scope of factor products in liquid alternatives. As we have observed already in this report, factor-based absolute return funds are already disrupting the hedge fund industry. Respondents cited ongoing demand for liquid alternative products given uncertainty in the macro environment and the need to diversify portfolios. Many concluded that absolute return factor products are likely to be the biggest growth segment for factor investing over the next 12 to 18 months.

“There is huge demand for cheaper fixed income solutions – there is no ‘equivalent of market cap’ for fixed income, so we need alternative weightings”
Insurer, Europe

“Hedge fund performance is so poor that quant absolute return funds are our priority”
Pension Fund, Europe

Growth in holistic internally managed factor models to manage risk and improve diversification

As factor allocations within portfolios grow, the desire to create more customised internal models will also grow. Factor products are expected to continue to grow in importance relative to fundamental active products based on cost and risk and relative to indexing products based on risk and return on a standalone basis. But respondents explained that more factor product sales will likely emerge based on analysis from new internal factor models. The primary drivers for these allocations will likely be risk management and diversification rather than performance or cost. This finding supports the results in figure 17 showing that the importance of diversification as a driver of factor adoption is expected to increase in the future.

Greater blurring of the lines between smart beta, quantitative and fundamental strategies

Respondents were able to distinguish between market capitalisation indexing, smart beta, active quantitative and active fundamental strategies. However, there was consensus that the divisions between these propositions are increasingly blurred. Generalisations such as smart beta focusing on single factor and quantitative investing focusing on multiple factors no longer apply. Hybrid propositions including quantitative and fundamental components are expected to gain traction. Furthermore, the pricing differentials between these propositions will likely narrow significantly over time. These changes may make it harder to categorise asset managers, especially as more indexing and fundamental managers are expected to build factor propositions over time.

“Unless fundamental managers address their cost and performance issues, we will continue to transfer assets to factor solutions”
Sovereign, Europe

Performance will influence the pace of growth in factor products

An important theme emerging from discussions on the future of factor investing was the role of performance. Respondents explained that many new investment concepts were challenged by a period of underperformance. Particularly in the private banking channel, respondents explained that the short- to medium-term performance of their small cap and low volatility products would be critical to future adoption. In the institutional market, major performance challenges at a high-profile factor advocate would also damage future uptake, especially given the importance of peer precedents in the Asian sovereign case study in theme 2.

“If one of the pioneering factor investing funds were to underperform consistently, it would certainly slow down our adoption”
Sovereign, North America

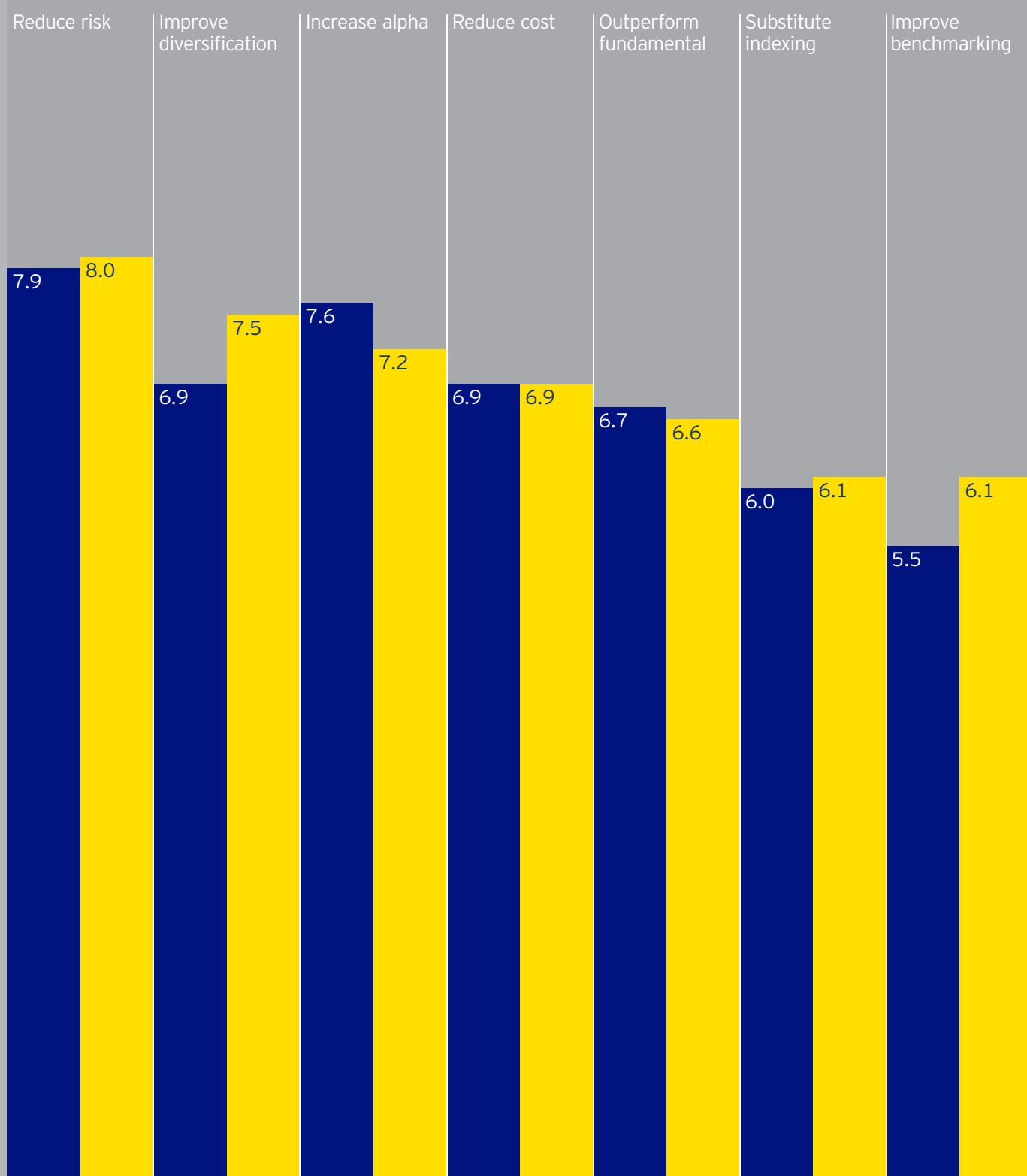
Success depends on the ability of an asset manager to meet the needs of investors rather than its business model

When asked to consider the future winners from an asset manager perspective, respondent feedback shown in figure 18 was polarised. Respondents explained that quantitative specialists, indexing providers and active managers all had relevant capabilities. Quantitative managers can leverage their track records and experience, fundamental managers can leverage their existing relationships and research, and indexing managers are best placed to compete on cost via more commoditised factor products. Overall respondents explained that success depends on a manager's ability to deliver customisation, training, marketing support and performance rather than its origins and business model.

“We want to build something innovative and customised so no manager will have a real track record, it is down to which managers understand what we want”
Sovereign, Asia

Fig 17. Drivers of current and future factor adoption

■ Currently
■ In five years' time



All respondents. Sample = 66. Rating on a scale of 1-10 where 10 is the most important

Fig 18. Best placed asset manager profile for factor growth

Quantitative managers

Active managers

Passive managers

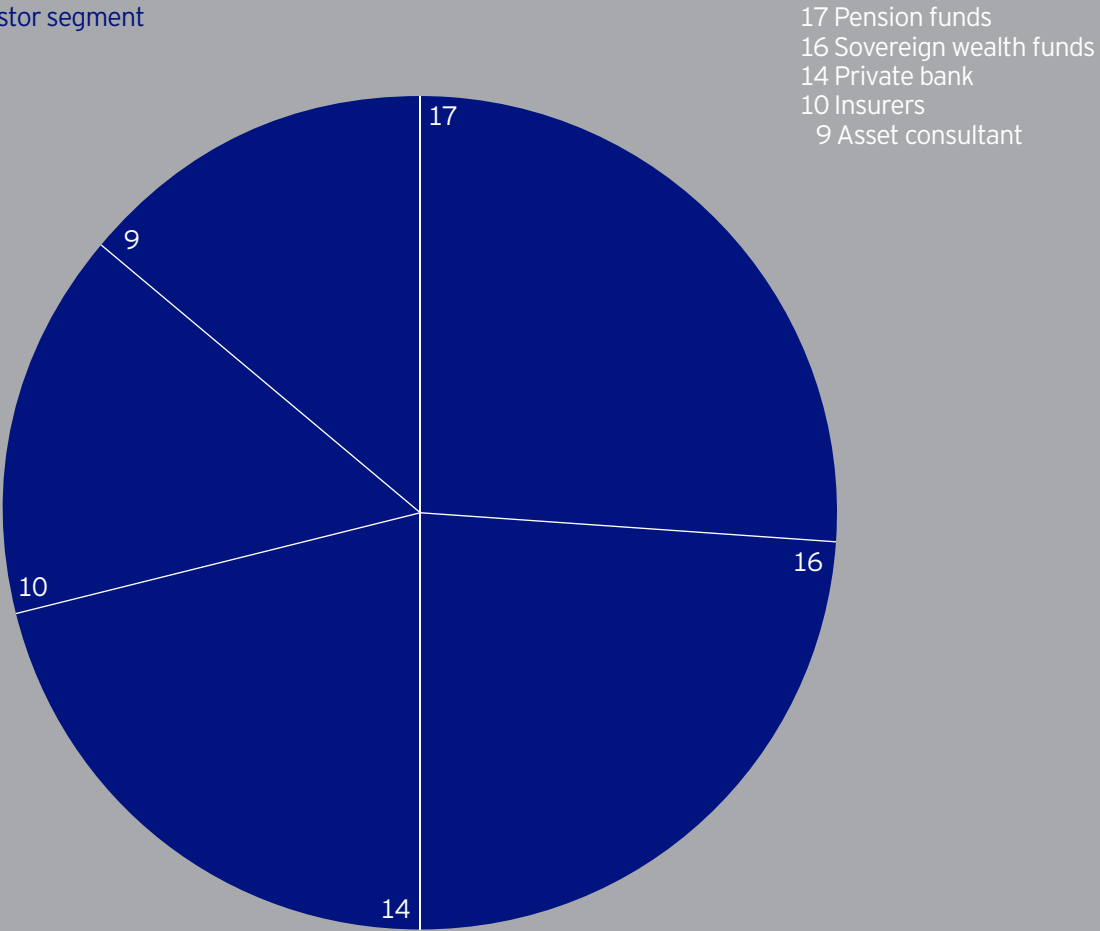
All respondents. Sample = 51

Quantitative managers	39%
Active managers	34%
Passive managers	27%



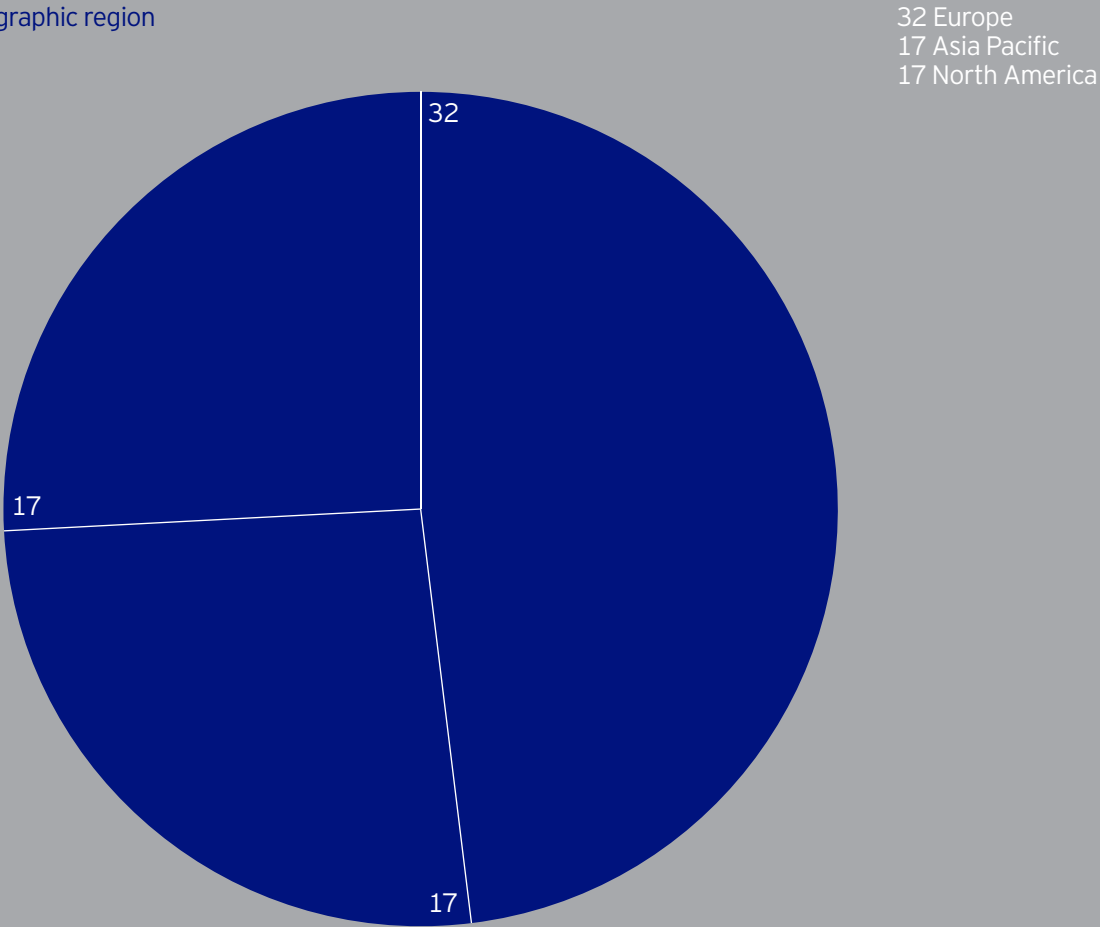


Fig 19. Sample by investor segment



Total sample = 66

Fig 20. Sample by geographic region



Total sample = 66

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 within institutional investors, asset consultants and private banks, conducting interviews using experienced consultants and offering market insights rather than financial incentives
- In-depth (typically 1 hour) face-to-face interviews using a structured questionnaire to ensure quantitative as well as qualitative analytics were collected
- Analysis capturing investment preferences as well as actual investment allocations with a bias toward actual allocations over stated preferences
- Results interpreted by NMG's strategy team with relevant consulting experience in the global asset management industry.

In 2016, the first year of the study, we conducted interviews with 66 different asset consultants, insurers, pension funds, sovereign investors and private banks globally. Across the sample, 77% of respondents were 'factor users', defined as any respondent investing in a factor product across their entire portfolio. We deliberately targeted a mix of investor profiles across multiple markets. The breakdown of the 2016 interview sample by investor segment and geographic region is displayed in figures 19 and 20. The bias to Europe was deliberate given the long history of factor investing in many European markets.

