LINE OF
SIGHT

The New Active Decision in Beta Management

An analysis of the role of alternative indexing

Northern Trust

We hope you enjoy the latest presentation from Northern Trust's *Line of Sight*. By providing research, findings, analysis and insight on the effects and implications of our changing financial landscape, *Line of Sight* offers the clarity you need to make better informed decisions.

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THE NEW ACTIVE DECISION IN BETA MANAGEMENT

April 2013

Overview

In January 2012, Northern Trust published "Customized Beta: Changing Perspectives on Passive Investing," in which we examined investors' use of passive investments. The results showed us that the line between passive and active management had blurred. Our findings led us to take a deeper look at this evolving space for our 2013 study. Specifically, we wanted to examine how institutional investors might be using alternative indexes in their portfolios. With the increased focus on risk management and the growing demand for low-cost, transparent strategies, we wondered whether making an allocation to alternative indexes might be the new active decision in beta management.

Why are we calling the decision to allocate to alternative indexes the *new active decision*? Because asset owners now must determine the allocation of their total portfolio across a spectrum from traditional beta, through alternative indexes and engineered beta, to traditional alpha strategies, thus creating an overall strategic portfolio designed to meet their objectives. In making this decision, the risk associated with the selection of underlying exposures moves from the active investment manager to the asset owner. In this way, the decision to allocate to alternative indexes is akin to selecting an active manager; it requires an intense assessment of investor objectives, identification of appropriate corresponding factors (such as value, low volatility or quality) or strategies, choice of indexes, definition of a weighting strategy among the indexes, and determination

EXPLORING THE CHANGING ROLE OF BETA

In 2012, in our paper "Customized Beta: Changing Perspectives on Passive Investing," Northern Trust interviewed institutional investors around the world about the evolution in their use of passive investments. We discovered a number of interesting themes from the investors included in the survey:

- More than 80% of investors believed that meeting their objectives was more important than outperforming a traditional benchmark;
- The majority (62%) of those surveyed spent a very small proportion (less than 10%) of their time on benchmark selection; and
- Around half of the investors we spoke to had explored the use of customized indexes.

These findings confirmed our view that the line between passive and active management had blurred, and highlighted the opportunities that might exist in this space. You can learn more at **northerntrust.com/morebeta**.

of metrics to measure success. Our 2013 survey has shown that although the decision is not without challenges, investors are increasingly comfortable with this new decision dynamic implying greater flexibility and control over their allocations.

Our research this year took a multi-pronged approach to exploring this *new active decision in beta management*. We spoke with global investment consultants and index providers and conducted in-depth interviews with very large institutional investors from around the world. We also undertook academic analysis of our own. We wanted to understand what investors currently are looking to achieve with alternative indexes, the source of these allocations, how they measure the performance of these investments and any barriers they had to overcome to allocate to this new investment approach. We also looked at the risk premiums they targeted and, using our own research, at how investors could combine different strategies to help mitigate risk or improve performance in their portfolios.

We look to learn from those already using these strategies, and highlight new opportunities to consider as you contemplate different ways of incorporating alternative indexes in to your portfolio.

SHIFTS IN THE QUEST FOR BETA

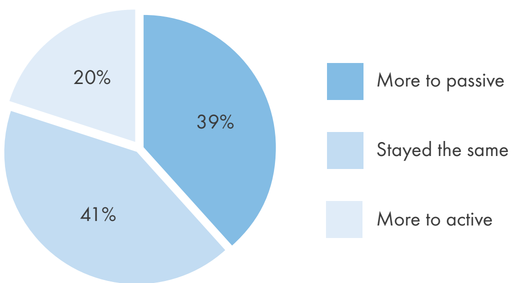
In this survey, we found that 20% of respondents had increased their allocation to actively managed strategies over the past five years, while almost double the number (39%) had increased their use of passively managed strategies. This echoed the findings of our 2012 Customized Beta survey, in which 60% of respondents said they expected to have at least 40% of their portfolio invested using passively managed strategies by 2014. But is this move to passively managed strategies hiding a more interesting trend – one of allocating across a range of beta strategies? Investors are allocating assets to specific risk factors or strategies that are predominantly passively managed. But most of the industry flow data does not differentiate between these allocations and those to traditional beta.

A MULTI-PRONGED APPROACH

We collected the views of 51 institutional investors from across the globe, with a collective responsibility for over US$800 billion. These investors ranged from pension funds to sovereign entities located across Europe, North America and Asia. Many of them are early adopters of alternative indexes. The direct experience of these investors was further supported by industry expert opinions, gathered through qualitative interviews with global investment consultants and index providers.

CoreData Research conducted the interviews between January and March 2013 on Northern Trust's behalf.

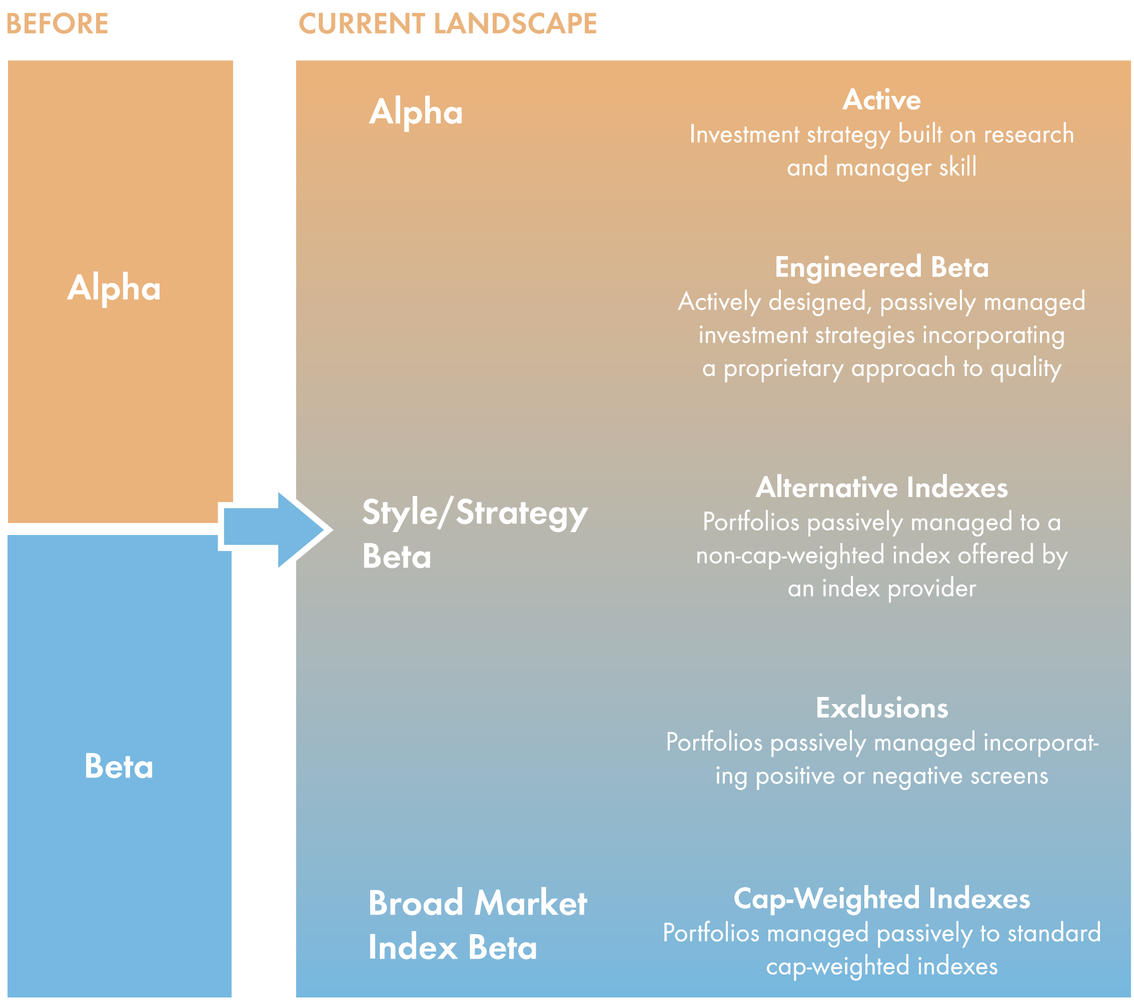
Exhibit 1: Change in Allocation Balance in the Past Five Years



Source: Northern Trust "Trends in Alternative Index Use" Study, 2013.

When we investigated the trend toward increasing beta exposure, we uncovered some interesting insight into how the investors in our survey are viewing the decisions related to their passive allocations. Rather than viewing their investment strategy options as either active or passive, investors today are considering a continuum of options, with traditional market cap-weighted indexes on one end, actively managed strategies on the other, and a blend of the two in between. We believe that asset owners will continue to allocate assets across the full equity continuum, giving more scrutiny to the active allocation and incorporating alternative indexes within the decision-making process.

Exhibit 2: Evolving Equity Spectrum



INCREASED INTEREST IN ALTERNATIVE INDEXES

As institutional investors facing a challenging environment yearn for increased control and flexibility in their passive mandates, alternative indexes are becoming a point of discussion. The investment concepts driving the creation of alternative indexes are not new; for decades academics have debated the assumptions behind the capital asset pricing model. Much academic research has been published on the topic, but the recent growth in variety and interest in alternative indexes can be attributed at least partially to the large inflows into traditional market capitalization-weighted index strategies from asset owners around the world. With the growth of assets managed against these indexes came a greater awareness of the potential benefits of an alternative to market cap-weighted indexes in an asset allocation context. Alternative indexes offer investors the potential to capture certain risk premiums and investment strategies using a beta strategy with greater risk efficiency and the inherent cost efficacy of a passive approach.

The number of alternative indexes available is constantly growing, offering investors a plethora of different construction styles and approaches. However, the sheer volume and variety can cause confusion.

Exhibit 3: A Range of Alternative Indexes for All Investor Needs

APPROACHES: FACTOR TILTS, REWEIGHTING, OPTIMIZATION, FUNDAMENTAL

Risk Based Indexes	Return Based Indexes	Diversification	Others
■ Minimum Volatility/Variance ■ Risk Weighted ■ Implied Volatility ■ Risk Control ■ Risk Model Based	■ Active Beta ■ High Dividend Yield ■ Fundamental ■ Value ■ Momentum ■ Quality	■ Equal Weighted ■ Maximum Diversification ■ Equal Risk Contribution	■ Emerging Market Fund Flows ■ GDP Weighted ■ Geographical or Economical Exposure ■ Commodity Third Generation Indexes

- Maximum Sharpe Ratio
- Global Intrinsic Value

KEY CONSIDERATIONS FOR ALTERNATIVE INDEXES

- Tracking error versus standard market-cap indexes
- Higher turnover
- Higher licensing costs
- Index risk
- Cycle factors
- Track record
- Investment rationale/ primary factor

Use Not Yet Widespread, But Growing

Penetration among institutions of alternative index investing may still be in its infancy; the size and sophistication of this year's survey participants allow them in many cases to be early adopters of new investment strategies. In our own conversations with clients we have noticed increased interest in these strategies.

The experiences of the respondents to this survey can help provide guidelines for other institutions looking to expand their passive investments beyond the realm of the market cap-weighted index.

While among the institutions that participated in our survey, three in 10 currently have an allocation to alternative indexes, almost half of those who don't are considering making an allocation. Some of the respondents' holdings are still relatively small and quite concentrated in a few strategies. But based on the responses to our survey it would appear that allocations to alternative indexes are poised to grow as understanding of these benchmarks improves.

Investors moving money into alternative indexes generally seem to approach it in one of two ways:

- Those seeking to reduce their costs while targeting specific factors or investment styles by moving money from the active portion of their portfolio (71% of those surveyed); and
- Those looking to increase the diversification or the risk adjusted returns of their existing passive exposure (14% of those surveyed).

In terms of the overall objectives of investors in our survey, risk mitigation ranked highest, but many also noted the importance of diversification and of return, driven by the historical outperformance displayed by some alternative indexes (see Exhibit 11 on page 13). These objectives can be met by alternative indexes, either by those that provide exposure to a specific factor or investment strategy or those customized to investor needs.

"Skill sets of both active and passive investment experts are needed for alternative indexes to be a success. Efficient collaboration between the two aspects of investing allows for strong analysis of existing alternative indexes and also ensures the construction of bespoke indexes that are fit for purpose."

Matt Peron
Managing Director
Global Equity Management
Northern Trust

A CONVERSATION WITH ... AN EARLY ADOPTER

"Philosophically we see alternative indexing as an alternative to active management. When it comes to the question of alternative index replacing the role of active management, we believe it will to a certain extent. Not the role of a skilled manager capable of adding value, but replacing the less skilled active manager who takes the market cap-weighted portfolio and tilts it in the same direction as the alternative indexes.

"In our global equity portfolio, 80% of our assets are managed to non-traditional indexes – not completely passively managed. We made this move rather early, in 2002, and we've been investing in these indexes since then without really needing to alter our exposure. I believe our approach is slightly different to others: our board takes decisions on allocations and on the benchmark, and we build the alternative index into our strategic portfolio.

"In our global portfolio we have broadly moved away from active mandates whilst in the local equity portfolio we have around 40% indexed against alternative indexes. We are now looking to increase our alternative index exposure and use a value-weighted approach for our emerging markets portfolio."

– Chief Investment Strategist of a large national pension fund in the Nordics

2 GICS refers to the Global Industry Classification Scheme.

Both approaches can improve a portfolio's risk-adjusted returns while still providing the transparency and cost minimization of a traditional passive approach.

Xiaowei Kang, director of research at S&P Dow Jones Indexes, notes: "Alternative indexes have the potential to compete with active managers, particularly those benchmark-driven managers whose investment process aims for a modest active return and a low tracking error."

These more sophisticated instruments also appeal to investors who are concerned about the efficiency of their investments. Kang concurs, saying, "There are some investors who have the strong conviction that market cap-weighted indexes are not efficient and are therefore considering these indexes as a viable alternative."

Successfully choosing and implementing an alternative index requires the skill sets of both active and passive investing. Investors must assess the investability, liquidity, turnover and index rules, as they do with their passive investments. But they also must evaluate the investment theory behind the quantitative investment strategy of an alternative index to ensure that the indexes are appropriate to meet their objectives, just as they would with an active investment.

"Our respondents highlight concerns with the complexity of alternative indexes, but the indices themselves are not the sole driver of the complexity. Much of this comes from the decision to use alternative indexes; a decision that requires a reconfirmation of an investor's objective and an understanding of the role and interactions the strategy has within the portfolio."

John Krieg
Managing Director
Asset Management
Europe, Middle East & Africa
Northern Trust

UNDERSTANDING BARRIERS TO ADOPTION

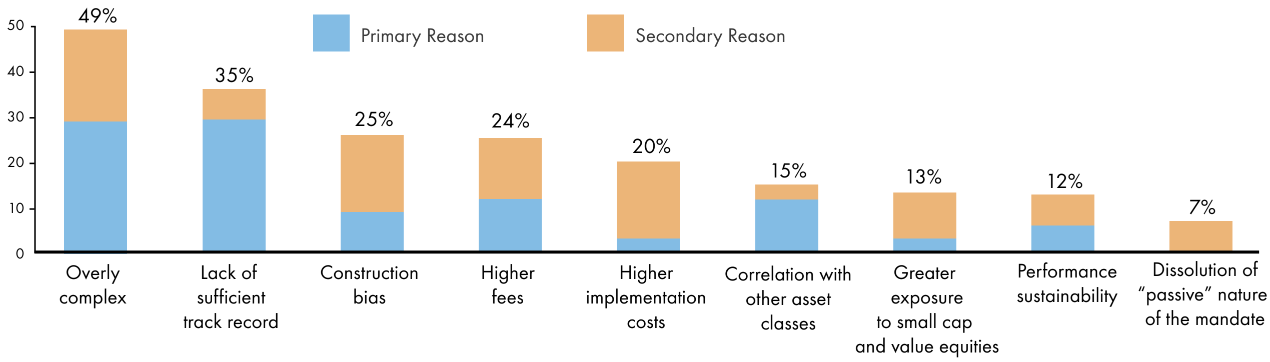
The decision to invest in alternative indexes is not necessarily easy to make. It requires commitment from chief investment officers because it involves them taking back the ownership of risk from their active investment managers and owning that risk in-house. Even the large investors in our survey cited certain barriers to overcome before making the allocation to alternative indexes, including the supposed complexity of the approach, lack of familiarity with the index, the higher fees compared to traditional index investments and perceived risk.

"The difficulty lay in convincing the board," says one investor. "They worried the tracking error would be high and the allocation would increase our risk. They also raised concerns about the increased complexity. We overcame this by persuading them to take a small step in this direction." In fact this institution currently has a small holding in alternative indexes, which it hopes to increase once the board is convinced by the performance of the allocation.

Even those investors who faced little resistance to incorporating alternative indexes were required to present the justification for investment very clearly to their board. "We had to explain and inform the board about the rationale for allocation to these strategies, but overall the whole process was fairly smooth," an investor says.

The notion that alternative indexes are overly complex is the primary influence to investor decisions – almost half of all respondents cite this in their first two reasons for not investing (Exhibit 4, on page 7). This is an area where more education about alternative indexes and greater transparency of index risk is necessary. The investment concepts underlying alternative indexes are quite straightforward, but they are not yet broadly understood. There is much academic theory published to support the argument for the use of alternative indexes, but in some ways the breadth of data and the number of indexes available can itself become overwhelming, and in reality the choice of index does require detailed analysis and understanding.

Exhibit 4: Barriers to Using Alternative Indexes



Source: Northern Trust "Trends in Alternative Index Use" Study, 2013.

Among those who do not invest in these strategies, one of the key barriers they cite is lack of track record. Given the strict guidelines by which institutional investors are required to abide, they need clarity around any decision they make. Investors that must justify their choices may feel that retaining the traditional passive allocation to market cap-weighted indexes may be a simpler route to take.

Demonstrating Performance History

It is worth exploring the track record issue in more detail, as it stands as one of reasons cited most commonly by investors for not including alternative indexes in their program. While we know that past performance is not an indicator of future performance, it does influence investment decisions. Because the rise in use of alternative indexes is relatively recent, with the exception of strategies such as minimum variance and equally weighted, some of the newer indexes lack a considerable track record. As a result, most of the performance analysis relies on back testing.

It is essential to bear in mind that the lack of track record and need for back testing is limited to the indexes themselves, rather than the factors to which they offer exposure. There are significant levels of assets managed to gain exposure to the underlying factors, and investors are able to look back at historical data for these factors.

However, the reliance on back testing for the indexes presents concerns for some, because the period of back testing covers a time in which the market as a whole was not focused on the factors now central to these strategies. As assets move into these strategies, investors might not experience performance in line with the back tested results. However, the amount of money currently managed against alternative indexes is still limited, so the strategies have far to go before returns are potentially hampered by a concentration of investment.

If back testing is conducted in a clear and transparent way, we don't believe it needs to pose concern for investors. In our conversations with consultants and index providers we discovered that they also recognize this issue. Carl Beckley, research and development director at FTSE Group, commented, "If the [back testing] process is simple and systematic and the tests go back far enough, then future returns are likely to be similar to the historical ones."

Jamie Forbes, regional director at Russell Indexes, notes the importance of economic rationale underpinning the investment approach to alternative indexes. She says: "Back testing informs us about what drives the risk return factors. But when building an alternative index, one requires a strong basis of academic discourse that can provide comfort around how these factors will perform in other, yet to come, market conditions."

With Comfort Comes Increased Use

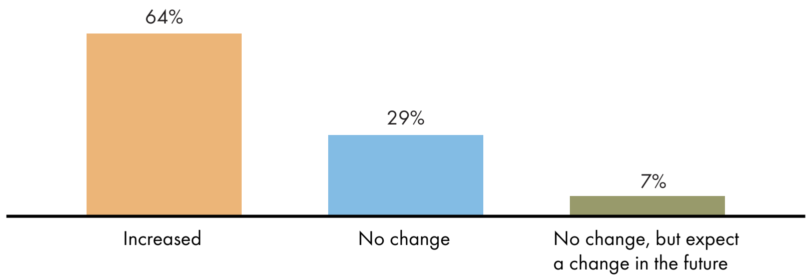
For the most part, survey respondents found that their investments in alternative indexes helped them meet their objectives. "All our strategies, bar a GDP-weighted index, have outperformed,[1]" says one investor. Another explains the allocation helped improve diversification and lower risk. Yet another investor, satisfied with the performance of the alternative index selected (in this case a risk weighted index) says: "It provides us with a higher Sharpe ratio at given volatility for cheaper explicit cost than anything else we can find."

One investor in our survey says the alternative index investment actually went above and beyond: "The indexes we invest in led to a satisfactory risk reduction and also reduced the real absolute volatility by 35%. This actually exceeded our expectations as we planned for a 25% to 30% reduction."

That the alternative indexes meet expectations perhaps explains why investors typically increase their allocations over time. Among those institutions in our survey with an existing alternative index allocation, almost two-thirds increased their exposure to these strategies (64%) over the past two years. A small proportion of investors (7%) say their holdings in this area have not changed, but will do so in the future.

1. Questions covered the past two years

Exhibit 5: Change in Allocation to Alternative Indexes in the Past Two Years



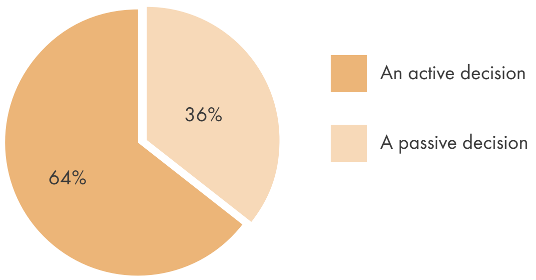
Source: Northern Trust "Trends in Alternative Index Use" Study, 2013.

These potential changes include expanding alternative index coverage to include different geographies, such as emerging markets, or investment beliefs like environmental, social and governance, as well as broadening the allocation to invest in alternative indexes targeting other factors or investment strategies.

ACTIVE DECISION, PASSIVE IMPLEMENTATION

By their nature, all decisions are active, but the decisions to invest in an alternative index and against which index to invest need to be considered in a similar vein to an investor's active investment allocation.

Exhibit 6: Defining the Decision



Source: Northern Trust "Trends in Alternative Index Use" Study, 2013.

"When moving from theory to implementation investors need to understand both the implicit and explicit costs associated with the replication of alternative indexes."

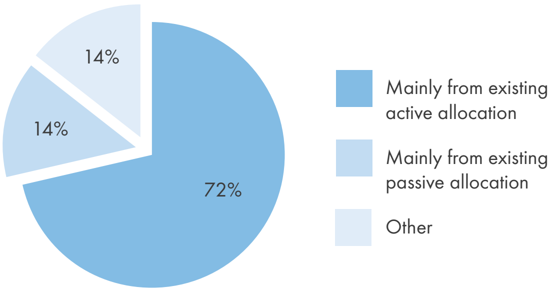
Mamadou-Abou Sarr
Senior Product Specialist
Global Index Equity
Northern Trust

However, once the index is chosen or built, depending on the approach selected, the investment is passively managed and can be monitored and reviewed in line with index investing. Many of the investors we spoke to agreed with this, with approximately two-thirds feeling it was an "active" rather than "passive" decision. We also asked them who makes the decision to allocate to alternative indexes, and learned that the index team made the decision in less than 10% of firms surveyed. For half of our respondents, the allocation decision sat within the active team, with the remainder using a combination.

In fact, more than 71% of investors in our survey say the funding for the alternative index portion of their portfolio emanated mainly from assets currently invested in active strategies (Exhibit 7 on page 10). For these investors, alternative indexes seem to be providing a more efficient, more cost-effective means of capturing returns that previously had come through traditional active management. The strategies employing active skill, which were once considered the only tool for the satellite or alpha-seeking portion of a portfolio, are now being replaced to some extent with alternative index strategies. This suggests that the role played by beta within a portfolio continues to evolve.

A smaller proportion, just 14% of respondents, moved assets from their passive allocation into alternative indexes, with the remainder funding the allocation from other sources.

Exhibit 7: Source of the New Allocation



Source: Northern Trust "Trends in Alternative Index Use" Study, 2013.

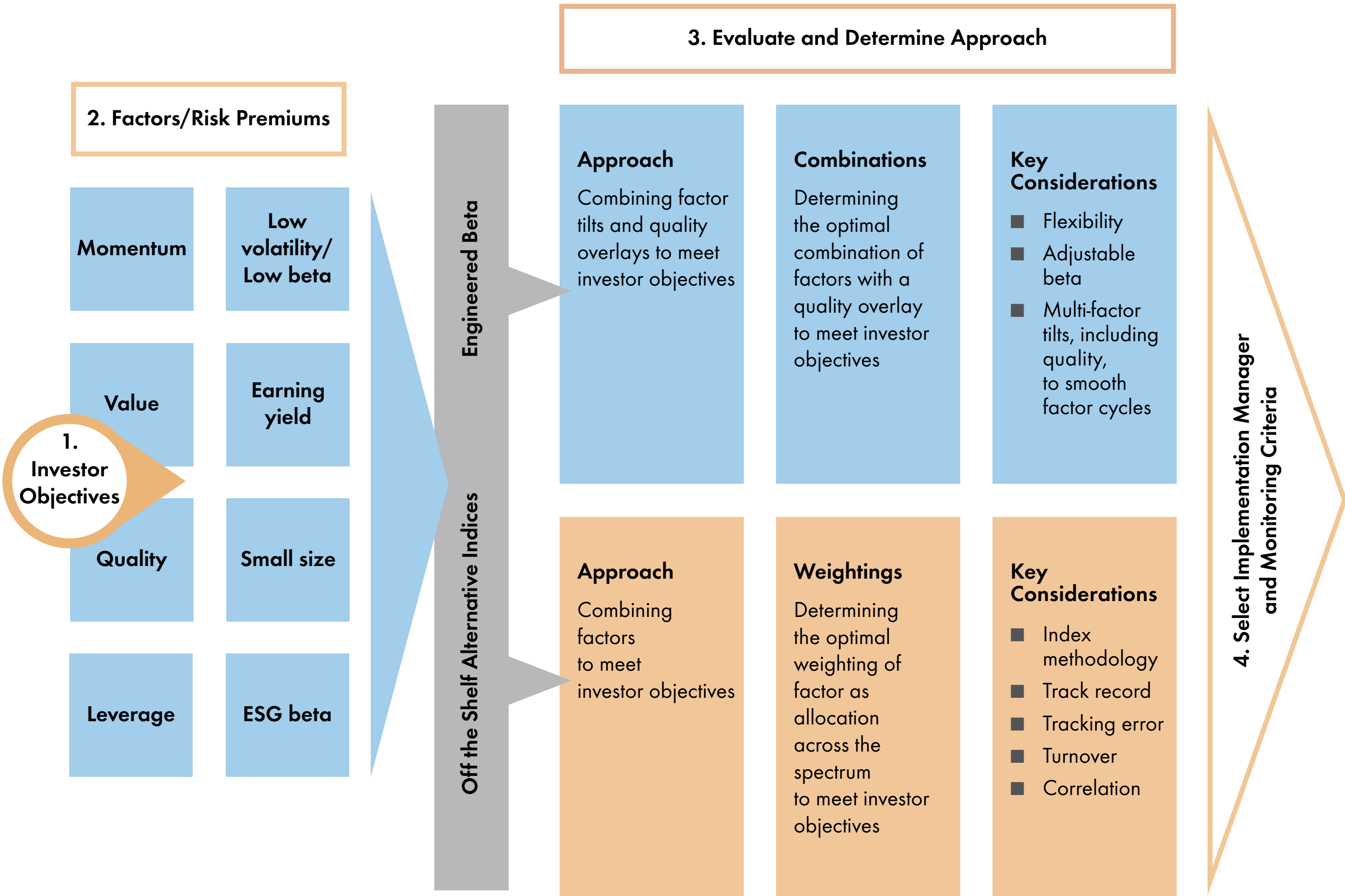
"Institutions need to recognize the importance of taking ownership of the decision to invest in alternative indexes. Since as a result of this decision they will own different factor exposures, the decision to make that allocation needs to be an active one."

Jamie Forbes
Regional Director
Russell Indexes

Jane Welsh, senior investment consultant, manager research at Towers Watson, stresses that the choice to invest in an alternative index strategy is indeed an active decision, but she considers the investment itself a passive one. Kang at S&P Dow Jones is of a similar opinion: "By allocating to alternative indexes, an investor is taking an active view [that is they are deciding to bet on low volatility or fundamental weightings] as well as factor exposures, but implementing that view in a passive way. So the risk they are taking is active but beyond that the strategy itself is implemented passively." Dimitris Melas, global head of new product research at MSCI, says alternative indexes are still considered to be a passive investment. He attributes this to the fact that the strategies are, by and large, transparent, systematic and low cost, in spite of the performance element they provide.

We agree that the decision is an active one, and would argue that the new active decision in beta management is slightly broader still. It starts when investors make the decision to allocate across the equity spectrum and then continues as they define what that investment allocation looks like. Before allocating to an alternative index, the majority of investors in this study considered the effect their choice would have on their portfolio's risk parameters, as well as how the selected indexes would interact with other asset classes. We believe the active decision to allocate to alternative indexes is a multi-step process that starts with investors defining their objectives. This allows investors, in the second step, to work with their managers to identify the factor or factors that will best meet these objectives. The third step involves determining the combination and weighting of these factors. In the final step, investors need to choose the right asset manager to implement their strategy and define the monitoring criteria (Exhibit 8, on page 11).

Exhibit 8: New Active Decision Four-Step Allocation Process



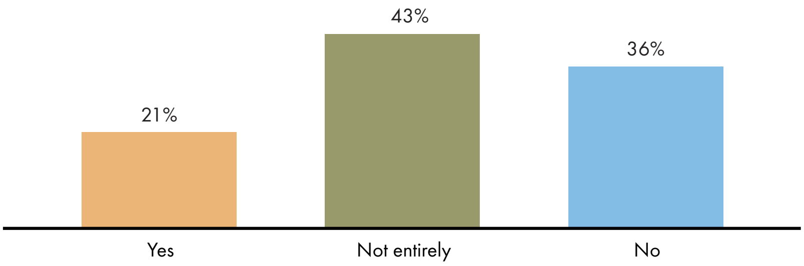
Bridging the Gap Between Traditional Strategies

About two-thirds of our survey participants expect alternative indexes to at least somewhat affect traditional active management. This is comprised of 43% of respondents who say alternative indexes will not entirely displace active management, taken together with those (21%) who believe it will (Exhibit 9, on page 12).

One investor's conviction that alternative indexes will change the face of institutional investment comes through with great clarity. This investor says: "There is a definite trend toward greater use of passive management and in turn, of alternative indexes. I wouldn't be surprised if we see 90% of institutional assets move into alternative indexes, with the remaining 10% being dedicated to absolute return strategies."

MSCI's Melas says: "Alternative indexes can be considered to be a bridge between active and passive investment approaches. They combine the benefits of both [transparency, low cost and simplicity from the passive side and performance from the active side] while eliminating some of the drawbacks of each."

Exhibit 9: Will Alternative Indexes Replace Traditional Active Strategies?



Source: Northern Trust "Trends in Alternative Index Use" Study, 2013.

By making strategic allocations to alternative indexes, institutional investors can focus on selecting the appropriate index or indexes to deliver on their specific objectives, which requires time and education. After this decision is made, the investment is passively managed, allowing the investment teams to focus more time on the smaller pure alpha element of their portfolios.

> *"A pension fund choosing to invest in alternative indexes needs to have very strong governance and a strong belief in the approach. Not all institutions are willing or even able to do this."*
>
> ***Jane Welsh***
> ***Senior Investment Consultant***
> ***Towers Watson***

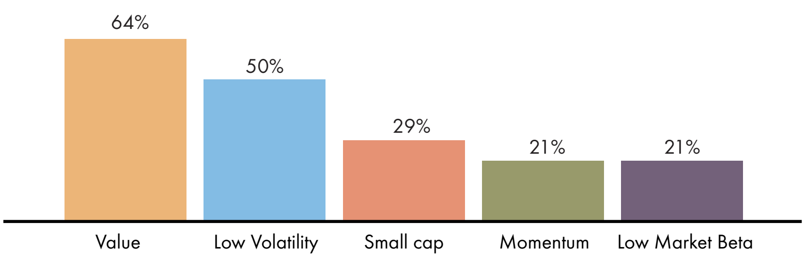
BEHIND THE TREND: MOTIVATION FOR USING ALTERNATIVE INDEXES

Perhaps as interesting as the trend toward increased allocations to passive investing in general, and alternative indexes in particular, is what the investors in our survey hope to achieve through their alternative index exposure. What is the motivation behind this trend?

Alternative indexes are appealing to many because they allow investors to access market returns by capturing exposure to specific factors, such as value, quality and volatility. The choice to invest in such indexes hinges on the belief that these factors not only exist, but are indeed the factors driving market return – and will continue to do so into the future. One investor says: "Investing in alternative indexes is about investment beliefs rather than investment insight."

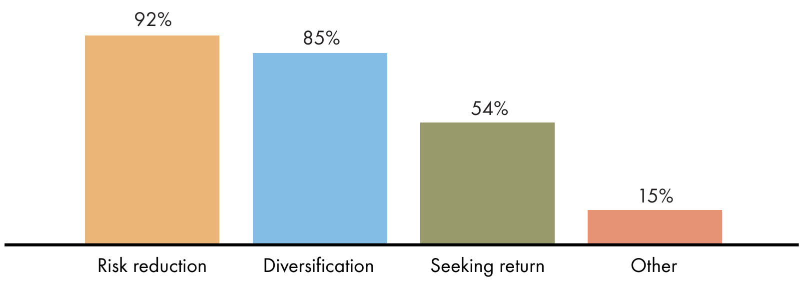
Value and low volatility are the factors attracting the greatest investor focus (64% and 50% respectively), with half or more of our survey participants indicating that their alternative index allocation aims to capture value and volatility factors and the risk mitigation benefits they offer. (Indexes that aim to capture these factors include the FTSE Rafi, the MSCI Value and the S&P Low Volatility.)

Exhibit 10: Factors Targeted



Source: Northern Trust "Trends in Alternative Index Use" Study, 2013.

Exhibit 11: Goal With Each Allocation



Source: Northern Trust "Trends in Alternative Index Use" Study, 2013.

However appealing the potential for strong returns may be, our survey showed that the majority of investors with an allocation to alternative indexes are looking to reduce their risk through these exposures (92%), with diversification – using an index such as Tobam Maximum Diversification – coming close behind (85%). Seeking return was less important; 54% of investors listed that as a driving factor. Others also aim to reduce volatility and improve investment efficiency.

A key discussion among advocates of the alternative approach to indexing centers around the role these allocations should play in institutional investor portfolios. For those investors we surveyed, the majority (71%) use their allocation to alternative indexes strategically – viewing the factor choices and investment over the long term rather than as short-term tactical bets. We also found that, of those respondents taking a core-satellite approach to their portfolio, slightly more considered their alternative index allocation to be part of the core element (43%) than the satellite (36%). As the definition of the allocation crosses the traditional boundaries between active and passive, this result is not surprising. We believe that the key role of alternative indexes belongs in this the core, strategic part of an investor's portfolio.

A CONVERSATION WITH ... AN INVESTOR ON THE BRINK OF USING ALTERNATIVE INDEXES

"After much discussion and analysis we made the decision to move more of our assets back to passive managers due to disappointing returns we received from our active investment allocation.

"These were difficult decisions, but we are happy with the outcome. Our next step will be to discuss the possibility of using alternative benchmarks, a decision process which we will begin later this year and will be combined with a new asset liability model study which we will work with our investment team to determine the breadth of the investment universe to include.

"In our annual report we are now required to disclose the management fees we pay to our investment managers, so transparency is a top item on our agenda. One thing we will be considering is whether investment managers are promoting alternative index products as a way to charge higher fees. Another key issue for us is risk, given the wide range of different styles of alternative benchmarks at which we need to look very closely to determine the risk levels in each."

– Director of Investments of a large European pension fund

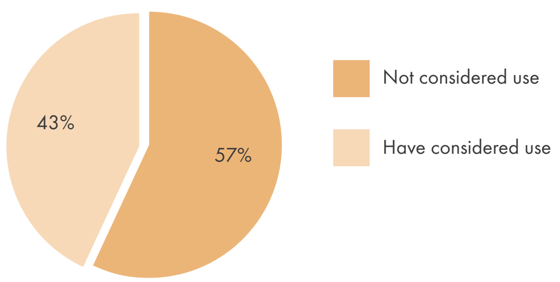
CHOOSING YOUR FACTORS

Some of the concerns about complexity raised by our survey respondents may originate from the process of selecting of factors rather than the indexes themselves. Knowing which factors to choose during which market cycles may be too daunting for some. How can institutions see past these concerns?

The concept of factor rotation, or making tactical allocations to indexes with different factor tilts to take advantage of differing performance in various market cycles, has received some attention in academic fields. However, none of the large institutional investors included in this study presently use this approach, although nearly half (43%) have considered it. The analysis needed to predict market cycles to benefit from the performance of different factors in different cycles is probably the biggest challenge confronting investors wanting to use factor rotation. Some of those investors who responded to the survey believe it is a step they may eventually take, but it is highly complex and not a decision to be taken lightly.

How can the majority of investors, who are not currently in a position to consider factor rotation, smooth out the volatility associated with the use of a single factor? Factor tilts, that is creating portfolios designed to gain exposure to compensated risks through tilting toward chosen factors, and a focus on high quality can help.

Exhibit 12: Consideration of Factor Rotation



Source: Northern Trust "Trends in Alternative Index Use" Study, 2013.

FACTOR TILT(S) ALLOCATION DECISIONS

While style factor tilts challenge modern financial theory, investors have successfully employed them for more than 40 years to improve on passive cap-weighted equity portfolios. Empirical studies have repeatedly shown that popular style tilts, such as value, low volatility and small size, outperform benchmarks across most global markets. Yet the best performing factor in one sub-period can turn out to be the worst performer in subsequent sub-period. In Exhibit 13 on page 15, you can see that the size factor had the weakest performance (-10.2%) during the dotcom bubble between 1996 and 1998. But it then had the strongest performance (10.2%) between 2008 and 2010, during the global

Exhibit 13: Factor Return and Volatility Over Market Cycles
MSCI World Factor Mimicking Portfolio Returns (Q1 – Q5) and Volatilities 1996 to 2012

Period	Value	Size	Low Volatility	Dividend Yield	Northern Trust Quality	Quality & Value	Quality & Size	Quality & Low Vol.	Quality & Dividend
Annualized Returns									
1996 to 1998	3.4%	–10.2%	–2.8%	7.0%	5.4%	7.5%	5.7%	3.6%	9.9%
1999 to 2001	12.2%	9.7%	4.3%	16.9%	8.1%	15.1%	10.6%	5.3%	15.7%
2002 to 2004	11.0%	15.2%	7.1%	15.3%	5.7%	13.8%	13.0%	7.3%	14.9%
2005 to 2007	–0.4%	–3.2%	2.5%	3.4%	2.1%	1.8%	0.3%	1.7%	3.2%
2008 to 2010	0.8%	10.2%	–7.0%	1.6%	5.0%	4.6%	6.4%	9.3%	9.3%
2011 to 2012	–3.0%	0.4%	19.3%	–0.2%	9.1%	3.2%	8.6%	16.1%	6.4%
Average	6.6%	2.9%	2.8%	10.6%	5.3%	9.5%	7.4%	4.5%	10.9%
Annualized Volatility									
1996 to 1998	12.2%	15.0%	13.5%	11.6%	6.1%	8.3%	9.3%	9.0%	9.8%
1999 to 2001	21.9%	14.2%	15.6%	20.5%	6.8%	14.8%	10.6%	10.4%	14.5%
2002 to 2004	10.1%	8.8%	15.1%	11.2%	6.5%	8.3%	5.0%	10.6%	9.8%
2005 to 2007	5.8%	5.9%	5.2%	7.1%	2.8%	4.6%	4.8%	4.1%	6.5%
2008 to 2010	13.5%	12.8%	14.3%	13.7%	5.8%	7.7%	8.0%	9.7%	8.6%
2011 to 2012	8.7%	4.6%	13.0%	6.2%	3.7%	4.4%	4.0%	9.6%	6.2%
Average	12.5%	11.0%	12.4%	12.6%	5.6%	9.0%	7.4%	8.5%	10.1%

Source: Northern Trust Quantitative Research.

financial crisis, with annualized volatility of more than 12% for the two periods. Other factors behave differently – consider dividend yield, which showed strong performance during the dotcom bubble (1996 to 1998) and poor performance during the global financial crisis (2008 to 2010). This highlights that, despite aggregate outperformance, most factor tilts have inconsistent returns due to "factor cycles."

This inconsistency, and the correlation of factors, suggests that the ideal approach for investors looking to use alternative indexes to incorporate factors in their portfolios, may be to combine two or more factors that respond differently to the various market cycles. This multi-factor tilt approach should help smooth out the volatility associated with factor exposure.

Within a multi-factor approach, asset managers can do several things to best deliver on an investor's objectives:

- **Diversify the origin of factors.** Factor exposures are everywhere, not just in a particular sector or region. For example, some investors will seek yield exposure by investing in specific sectors, such as U.S. utilities. Extracting exposure to yield from all sectors or regions should mitigate the volatility associated with investing in a more concentrated factor portfolio.

- **Remove any unintended exposures.** For example, ensuring that a size tilt has no unintended exposures to momentum, volatility, etc.
- **Combine various factors that are less correlated.** This can help to moderate the portfolio's overall volatility. For example, combining low volatility, value, size, yield or momentum with the quality factor, which is less correlated.

TAKING A HIGH QUALITY APPROACH

As we have seen, accurately choosing which factors and weightings will best mitigate volatility in a portfolio is not always easy to do. And while simply combining less correlated factors can help, our proprietary research has shown that combining a number of different factors with quality can further reduce volatility. Including a quality tilt can ensure that your portfolio is positioned to capture the returns from well-managed firms, firms that are most likely to steer through different market cycles. Exhibit 13 on page 15 demonstrates the benefits of combining value, size, low volatility and dividend factors with quality. But why should an investor be paid to hold high quality stocks? What is the theoretical justification for this quality factor premium? This anomaly is similar to the benefits seen in low volatility. One explanation for the low volatility phenomenon is that low volatility stocks are not, in fact, underpriced; rather high volatility stocks are overpriced. The rationale is that investors seek "lottery ticket" type returns in high volatility stocks and, as a result, bid up the price of high volatility.

Likewise, with quality, it's not that high quality is cheap – it's that low quality is overpriced due to this "lottery ticket" effect. Our internal analysis has shown that between 1996 and 2012, the stocks in the highest quintile of quality outperformed the lowest quintile of quality by more than 600 basis points per year, and outperformed the MSCI World by more than 380 basis points per year. Correlations show a high degree of consistency between returns of high volatility and returns of low quality.

THE CONCEPT OF QUALITY

Research by both academics and index providers has demonstrated that portfolios with a core holding of high-quality companies tend to outperform their benchmark and offer some downside protection over a full market cycle.

Although "quality" is among the most overused terms in the investment vernacular, there are some quantifiable measures common to most quality approaches, such as analyzing a company's earnings patterns, cash flow, debt level and income stream. In addition, many strategies assess a company's management team by examining capital expenditures and asset turnover rates.

Some approaches put more emphasis on the strength of the management team, while others look more closely at financial performance. Often, however, they go hand in hand. For example, it seems logical that a prudent management team that uses capital judiciously often sets the stage for strong earnings growth, cash flows, share buybacks and dividend payments, and is more likely to have greater operational efficiency and a sharper competitive edge. These companies also are better positioned to deliver positive incremental returns than companies with more aggressive management teams that may be overleveraged or rely heavily on external financing. This debt overhang tends to limit their flexibility and can lock them into an expensive capital expenditure program from which they cannot exit when markets turn volatile. In contrast, cash-rich companies can easily meet their debt obligations and day-to-day liquidity requirements.

Exhibit 14: Combining Factors With Quality

MSCI World Factor Mimicking Portfolio Annualized Returns 1996 to 2012

Quality	Dividend Yield				
	High	Q2	Q3	Q4	Low
High	16.3%	15.4%	10.1%	5.8%	9.4%
Q2	15.8%	12.6%	11.1%	5.3%	6.6%
Q3	14.6%	11.2%	9.0%	4.2%	5.3%
Q4	11.6%	8.6%	6.6%	3.5%	6.4%
Low	10.2%	13.4%	5.7%	2.4%	3.3%

Quality	Value				
	Expensive	Q2	Q3	Q4	Cheap
High	9.6%	8.8%	10.2%	11.6%	15.3%
Q2	6.0%	8.0%	8.7%	11.0%	14.2%
Q3	4.8%	6.3%	7.7%	11.1%	12.6%
Q4	5.8%	6.0%	4.8%	7.8%	10.3%
Low	3.5%	4.6%	4.8%	7.8%	9.5%

Quality	Volatility				
	High	Q2	Q3	Q4	Low
High	9.9%	10.2%	11.9%	11.8%	12.7%
Q2	8.7%	10.7%	8.9%	10.3%	10.1%
Q3	5.0%	8.9%	8.8%	9.5%	9.9%
Q4	6.7%	6.9%	5.5%	7.7%	7.5%

Quality	Size				
	High	Q2	Q3	Q4	Low
High	16.3%	10.5%	12.7%	8.5%	6.1%
Q2	12.7%	9.3%	10.4%	8.0%	9.5%
Q3	12.0%	8.4%	8.5%	7.4%	6.2%
Q4	10.3%	5.1%	7.4%	5.5%	6.0%

Source: Northern Trust Quantitative Research.

Exhibit 14 illustrates how the multi-factor approach, using quality with other factors, can produce returns that exceed any factor individually. For example, the top 40% of stocks at the intersection of high quality and high dividend yield earn an average annual return of 15% (the calculated average of the highlighted quality and dividend yield intersections in Exhibit 14) which is greater than the returns to the top quality quintile (12.5%) or the top dividend yield quintile (14.1%) on their own, as illustrated in Exhibit 15.

Exhibit 15: Individual Factor Return

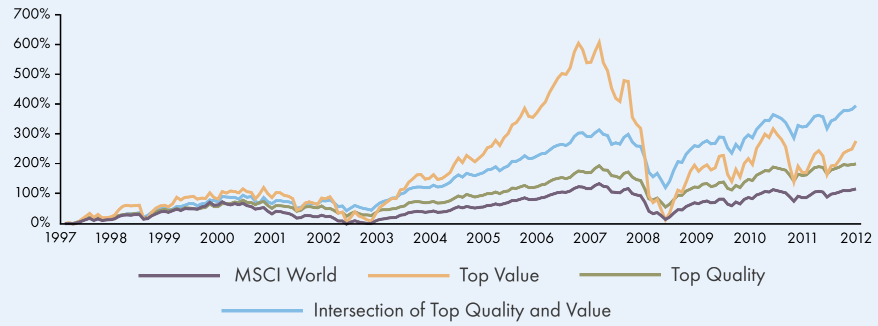
MSCI World Annualized Returns 1996 to 2012

	Returns 1996 to 2012							
	Quintile	MSCI World	Value	Size	Momentum	Volatility	Dividend Yield	Northern Trust Quality
High	Q1		12.5%	6.9%	10.8%	6.4%	14.1%	12.1%
	Q2		10.0%	6.7%	9.2%	8.8%	12.0%	10.6%
	Q3	8.3%	7.2%	9.0%	9.2%	8.1%	8.7%	9.1%
	Q4		6.6%	7.1%	7.1%	8.8%	4.2%	7.2%
Low	Q5		5.2%	11.7%	5.2%	9.4%	5.6%	6.0%

Source: Northern Trust Quantitative Research.

Our research indicates that investing in value and high quality securities can lead to stronger performance, while reducing the volatility associated with value alone. Exhibit 16 on page 18 shows the cumulative return of top quality as a factor, top value as a factor and the combination of the two, as well as the MSCI World from 1997 to 2012. You can see from this chart that the combination of the two factors reduces volatility as compared to value alone and offers higher performance than quality alone.

Exhibit 16: Combining Quality With Value 1997 to 2012



- Hypothetical portfolios consisting of value (orange line) and high quality (green line) have outperformed the index (purple line) during the indicated 16-year time period.
- Our research shows that hypothetical portfolios comprised of the intersection of value and high quality stocks (blue line) outperformed both the value and high yield strategies alone, as well as the MSCI World Index.

Source: Northern Trust Quantitative Research.

Style factor indexes can outperform traditional market cap-weighted benchmarks and do so with lower risk. However, the specific factors should be chosen wisely. Although value, size and dividend yield tilts would have all beaten their benchmark over the long-term, they are subject to significant timing risk, exposing investors to extended period of underperformance. Multi-factors tilts and those that include quality can deliver both higher and more consistent returns and reduce frequency and severity of drawdowns.

MEETING THE PERFORMANCE MEASUREMENT CHALLENGE

As we have discussed, making the decision to invest in alternative indexes can be a difficult process in and of itself. Understanding the role the indexes can play in a portfolio, determining goals, combining your factors, selecting the appropriate benchmark in which to invest and explaining it all to the board can be time consuming. But equally important is the decision about how to measure performance. Especially for investment boards that are accustomed to seeing performance calculated against a known, traditional benchmark, alternative indexes can fall outside their comfort zone.

Modeling Before Investing

A key question in our survey addressed the inclusion of alternative indexes within the respondents' asset liability modeling (ALM). We were surprised by the number of our survey respondents that did include the alternative indexes, suggesting that they are beginning to accept alternative indexes as playing a central role within their portfolio construction and, as such, are using them as representative of the market for modeling purposes. The investors surveyed are split down the middle; half incorporate their allocation into their ALM studies, considering their expectations and downside risks as they would the traditional active or passive investments, while the other half do not. A number of alternative index investors integrate their allocation into the institution's asset liability modeling annually, where it is generally classed as a beta exposure. Others, however, have no expectation of return from their exposure. One investor whose institution does not include the alternative index investment in its ALM study says, "We just hold the belief the allocation improves our risk adjusted return."

We believe that it is important to include alternative investments in the ALM to help investors develop a clear overall picture of the risks of their entire portfolio.

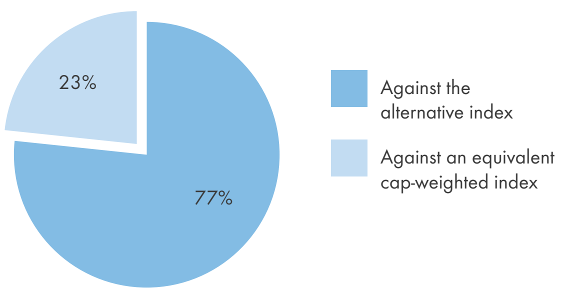
Monitoring After Investing

In many of our conversations with clients, we find that they are required to track the performance of their alternative index investments against the equivalent market cap-weighted index. However, the majority of investors (77%) in this study measure their alternative index exposure against the index itself. A smaller proportion (23%) use an equivalent market cap-weighted index, and in some cases the investors were using both indexes for performance measurement. Given the focus of this survey on some of the world's largest institutional investors and early adopters of alternative indexes, it is encouraging to see that these investors are taking a robust approach to their performance monitoring. We believe that an approach using the alternative index for performance monitoring combined with the standard index as a reference is sensible and should be used as a guide for those now considering such an allocation.

"It is not enough that investors undertake thorough analysis of the alternative indexes before they invest. They also must, in collaboration with their managers, develop a robust approach for monitoring performance."

Ken Chuah
Head of Asia Pacific Equity Index Management
Northern Trust

Exhibit 17: Measuring the Alternative Index Allocation



Source: Northern Trust "Trends in Alternative Index Use" Study, 2013.

When discussing the advantages and disadvantages of their chosen approach, investors say neither approach is completely accurate. One investor says: "There is much to be improved regarding the performance measurement of alternative index allocations."

Another explains that although the board of trustees needs to see performance measured against the equivalent market cap-weighted index, the pension fund's internal investment team also records the performance of their alternative index allocation against the alternative index itself. The market cap-weighted equivalent index "is a frame of reference that is familiar and the tracking error can be easily monitored and explained to the board," the investor says.

The approach of using just the alternative index or both indexes for monitoring is sensible. Tracking the performance of alternative index investments against the standard market cap-weighted equivalent index can result in a significant difference in performance, or tracking error, between the two. However, this does not mean that investors in alternative indexes are exposed to a greater level of risk. This performance differential occurs because the index concentrations are entirely different, which makes comparing alternative indexes to an equivalent market cap-weighted index akin to comparing apples to pears – they share some similarities, but you are not comparing like with like.

Tracking the performance of alternative index investments against the standard market cap-weighted equivalent index can result in a significant difference in performance, or tracking error, between the two. However, this does not mean that investors in alternative indexes are exposed to a greater level of risk.

Unfortunately, the use of tracking error as an indicator of risk is likely to persist, particularly where the alternative index investment has been made as an explicit alternative to a traditional index. Deborah Christie, managing director, manager research at Cambridge Associates, says tracking error is a matter of concern to investment consultants. However, she indicates that, in her opinion, all equity portfolios can, theoretically, be compared to the relevant market portfolio, as represented by the cap-weighted index.

Melas, from MSCI, notes: "No one strategy is a silver bullet and investors need to be prepared for considerably long periods of underperformance [if invested in a single alternative index strategy]. Cycles still exist and they need to be able to withstand that."

This is one of the reasons why investors choosing to allocate to alternative indexes need to be fully invested in the approach. "By making the decision to go the alternative index route, investors are taking the responsibility for the performance of that strategy upon themselves, which they may be forced to defend," says Melas.

LEARNING FROM EXPERIENCE

The world of asset management is continually evolving: investors are becoming more sophisticated, asset managers are seeking new ways of meeting investors' objectives, and both are forced to adapt to macro-economic and regulatory developments.

Investors' focus on transparency and delivering returns in the tough environment has placed a spotlight on the active portion of their portfolios – encouraging them to identify those returns delivered by true manager skill, and to pay only for skill rather than for simple exposure they can capture through alternative means. In doing this investors and managers alike have focused on the area between traditional passive and pure active management, understanding the growing opportunity set of both alternative indexing and engineered beta products they can incorporate into their portfolios alongside a purely passive and active allocation.

However, even some of the world's most sophisticated institutional investors have faced challenges in making an allocation to alternative indexes. The decision is not without its challenges, taking many investors and their board members outside of their traditional benchmark comfort zones and requiring them to truly understand their objectives and allocate with conviction.

CONSIDERATIONS FOR IMPLEMENTATION

We believe that if investors consider their alternative index allocation as an active decision within their beta management, and break the process down to four discreet steps, ensuring that any allocation is truly aligned to their objectives, alternative indexes can be a valuable tool.

All four of these steps are important, and the final stage of implementation should not be overlooked. According to Beckley, at FTSE, the expertise of the implementing manager is key to mitigating any implicit costs, such as higher turnover, and to finding the most efficient way of operating the portfolio. At Northern Trust, we believe investors will benefit from looking for an investment manager whose expertise spans both active and passive management. This way, the manager will be able to analyse factors effectively and implement a passive approach efficiently.

The experience of the investors we interviewed in this survey has supported the use of alternative indexes: they generally have been happy with the performance of the factors they have chosen. Furthermore many have increased their exposure to alternative indexes in the past two years. It would seem that once an investor gets through those early steps, the process becomes easier.

KEY FINDINGS

We can learn a great deal from those investors already employing alternative indexes in their portfolios:

- Allocation to an alternative index requires detailed analysis and full due diligence, in line with an active allocation decision.
- An allocation to alternative indexes can be used either within a core or satellite allocation depending on the factor or investment strategy exposure.
- Tracking error of an alternative index investment versus a standard market cap-weighted index does not indicate an increase in risk. They are fundamentally different indexes.
- Investors need to understand their investment objectives to choose the right factors and weightings to help achieve their goals.
- Choosing a single factor or strategy exposure may result in underperformance in some market cycles; investors may wish to consider combining different factors with quality to smooth volatility and enhance performance.
- Implementation, requiring both a passive and an active skill set, is key to the success of your alternative index allocation.

At Northern Trust, we see value in a multi-factor approach to investing in alternative indexes, combining factors that together meet your objectives and considering incorporating quality to help smooth out volatility and boost average returns. It is key, therefore, that your asset manager undertakes analysis and offers consultation and guidance so you can feel comfortable that your decision to make this investment meets your needs and expectations, regardless of whether the alternative index exists or is tailor-made to your specifications.

As with other investment opportunities that have proven to be beneficial to investors, the early adopters may get the greatest value from adopting the strategy. To reap the benefits, investors will need to focus more on what can be delivered in the future as opposed to what has been delivered in the past.

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