



LINE OF
SIGHT

Customised
Beta

Changing
Perspectives
on Passive
Investing

European Edition



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.

CUSTOMISED BETA

Changing Perspectives on Passive Investing

OVERVIEW

The turbulence and uncertainty that has confronted investors during the past 10 years has given rise to an increased focus on transparency and risk management. At the same time, many investors are now focused on meeting objectives for their portfolios that go beyond simply outperforming a benchmark. In response, a new range of passive strategies has emerged, moving away from traditional/cap-weighted indexing to alternative indices and, increasingly, customised index approaches. These new indices have been designed to help investors address their specific objectives. Given their shifting objectives and implementation strategies, some investors are assessing new strategies to determine whether these evolving approaches might better meet their needs.

January 2012

The ability to tailor an index to create exposures that suit an investor's specific needs, then passively manage assets to this index raises genuine questions about the distinction between alpha and beta. Such indices could serve to provide specific style exposures or an efficient risk/reward ratio to reflect various sources of systematic return.

As a leader in global asset management, Northern Trust decided to examine more closely the practical implications for investors of the evolving use of passive investments in institutional portfolios. In particular, we examined investors' expectations for using passive management in the future, the effect of increasing passive use on investment decision making and whether they have concerns about benchmark construction methodology. The results of our research highlight some interesting trends in institutional investment management.

THE VOICE OF THE MARKET

To develop a comprehensive, market-based understanding of the evolving role of passive management and the implications of this evolution to institutional investors, Northern Trust engaged Greenwich Associates to interview 121 institutional investors around the globe, 41 of which were in Europe. All together the participants included in the analysis have more than 2.5 million employees and manage more than \$500 billion in assets. Interviews were conducted during August and September of 2011.

THE LOST DECADE

The last 10 years of investing were epitomised by turbulence, uncertainty and inconsistent returns, leading some investors to reconsider their investment objectives. We have witnessed a period in which risk has not necessarily been rewarded and a new focus has been placed on transparency and risk management. However, one benefit of such a difficult environment is the creativity and innovation it encourages. This same decade has seen the development and growth of the exchange-traded fund (ETF) sector, the introduction of new fund structures, alternative forms of beta and improved transparency. The environment has demanded that investors become more sophisticated, and they in turn have demanded greater sophistication in the products delivered to them.

A notable consequence of the shift towards a transparent and economical approach to investing is the increasing use of passive strategies among institutional investors. *Pensions & Investments*' recent annual survey of index managers revealed that worldwide index assets surged for the year ended 30 June 2011, up 24.7% to almost \$6 trillion, a level surpassing the previous high at the end of 2007*.

With increased use comes increased attention. As institutions ramp up their use of passive strategies, they have begun to examine the construction and suitability of the benchmarks to which they are managing. Many of the investors in our survey (37% globally) expressed concerns that the standard construction of underlying cap-weighted indices may affect achieving their goals. In fact, academics have highlighted construction biases in cap-weighted indices for more than 20 years. The concerns that these biases are affecting their ability to meet their objectives are driving some institutional investors to seek out new ways to achieve benchmark exposure.

In seeking alternatives to a cap-weighted index, the first step investors take is typically towards an equally weighted index, which can, in its simplest form, introduce other issues, such as inherent sector biases, capacity constraints, high turnover or rebalancing issues. Investors that want to take things further might use benchmarks tactically or for theme-based investing to include regional or sector exposure. Investors that require a more specific approach might consider a fundamental or gross domestic product (GDP)-weighted index.

* *Pensions and Investments Online* (www.pionline.com), September 19, 2011.

THE GROWING AVAILABILITY OF ALTERNATIVE BETA APPROACHES

This is a sampling of the alternative index series global index providers have launched over the last decade. Investors examining these indices and products benchmarked to them need to understand the potential applications and related investment implications as they evaluate the roles these strategies might play within their portfolios.

INDEX SERIES NAME	STRATEGY FOCUS	LAUNCH YEAR
S&P Equal Weight Index Series	Equal Weighted/ Alternatively Weighted	2003
FTSE RAFI Index Series	Fundamental	2005
S&P Dividend Aristocrats	Dividend	2005
MSCI High Dividend Index Series	Dividend	2006
MSCI Minimum Volatility Series	Volatility/Risk/Risk + Factor	2009
MSCI Factor Index Series	Fundamental	2009
MSCI Value Weighted Index Series	Fundamental	2010
FTSE Active Beta Index Series	Fundamental	2010
FTSE StableRisk Index Series	Volatility/Risk/Risk + Factor	2010
MSCI Risk Weighted Index Series	Volatility/Risk/Risk + Factor	2011
FTSE TOBAM	Maximum Diversification	2011

Sources: S&P, MSCI, FTSE and Northern Trust

If these alternatively weighted indices are not meeting their needs because of their limited transparency, high turnover or limited breadth of coverage, some investors may choose to tweak an existing index or design their own. A variety of terms have been coined to describe these efforts, including smart beta, intelligent beta, engineered beta and others. These methods can be viewed as sitting in the exclusions, tailored indices or engineered beta buckets on a spectrum of beta. In this paper we will refer to these as customised beta.

SPECTRUM OF BETA

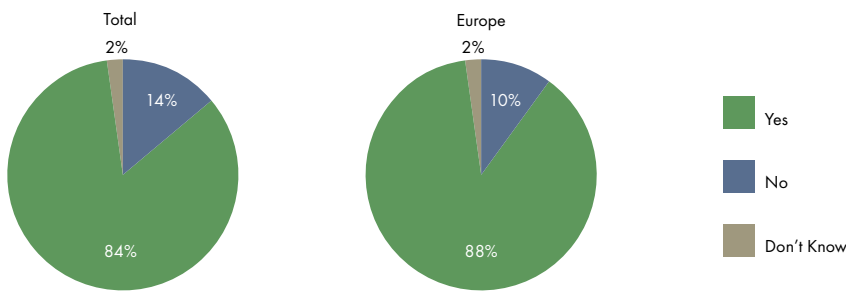


INVESTING WITH PURPOSE

The past decade has brought an important shift in institutional investment philosophy: Whereas historically most institutions defined the overall goal of their investment portfolios as outperforming a benchmark, institutions today see their primary task as meeting the overall objectives for the investment fund. One investor summarized the view of many European respondents, stating that “[the overall goal of our investment portfolio] is staying fully funded, and having a cushion to take care of volatility.” While specific objectives vary from institution to institution based on their specific priorities, such as maintaining funding status, hitting return goals within a risk budget or maintaining downside protection, there is little doubt that among our survey participants these organisational requirements have replaced relative performance as institutions’ primary measure of success.

Of the institutions participating in our study, 84% globally say that meeting their own unique investment objectives is more important to them than outperforming relative to their chosen benchmarks (see Chart 1). In Europe, 88% of institutions say this is true, as do 86% of Asian institutions and 80% of institutions in North America.

CHART 1: IS MEETING MY INVESTMENT OBJECTIVE MORE IMPORTANT THAN OUTPERFORMING A BENCHMARK?



Source: Northern Trust Customised Beta Study 2011
Base: Total - 121 respondents, Europe - 40 respondents

INCREASED FOCUS ON PASSIVE INVESTMENTS

As institutions forgo relative performance measures in favour of a focus on meeting their own specific investment fund objectives, passive investment products that deliver market performance at a relatively low cost are becoming increasingly important tools in institutional portfolios. Worldwide, approximately one-third of institutions participating in the study say passive products make up more than 40% their equity and fixed income assets, and a sizable number of institutions expect to increase allocations to passive strategies over the next three years. Approximately four in ten of the institutions expect passive strategies to make up more than 40% of equity and fixed income assets by 2014.

European institutions are much more likely than their counterparts in North America and Asia (ex-Japan) to report relatively large allocations to passive products. Approximately 45% of institutions in Europe report that passive funds represent more than 40% of equity and fixed income assets, and approximately 57% expect passive strategies to cross that threshold in the next three years.

The research highlights a similarly strong allocation to passive within Asian institutions, but a lesser expected increase in these over the coming years. In North America the use of passive strategies is less prolific, with just 33% of participating institutions expecting their use of passive strategies to surpass 40% of the total portfolio by 2014. Yet, even those survey participants are planning to allocate more to passive over the coming three years.

One investor explains, “Over the past three years we have increased our passive mandate, [because] it allows us to respond more quickly to manager underperformance and to address any issues of downside risk ... and it allows for more management flexibility and sector exposure.”

Benchmark Concerns

According to the study, investors note that market cap coverage, style biases, weighting methodology and sector/country biases are the most important criteria when evaluating and selecting an index. These same institutions, however, express concerns about the construction of cap-weighted indices.

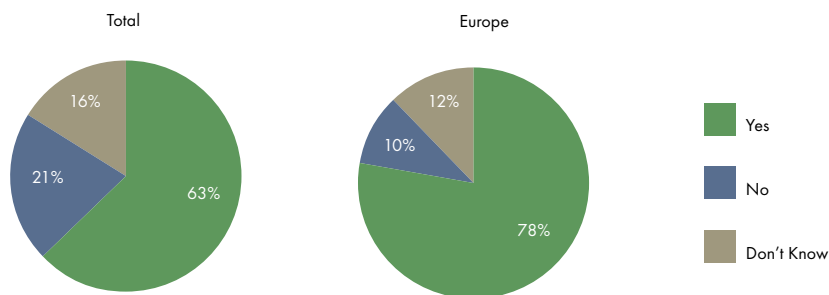
Globally, 37% of study participants describe themselves as “concerned” or “very concerned” about methodology-related biases in standard index-weighting schemes. Specifically, respondents noted concerns about biases towards larger market capitalisation in equity indices. For fixed income, their concerns centered on biases toward larger debt issuance. If these biases don’t align with investors’ objectives, they may seek more customised indices as an alternative. Worries about these issues are most evident in Asia, where more than half of study participants (52%) express some level of concern about index bias.

In practice, there is a common objective that we often encounter when working with investors in all regions to achieve emerging markets exposure. Many passive portfolios based on major global equity indices can fall short of the level of exposure institutions might prefer for smaller emerging markets because they are weighted by market capitalisation. In these cases, some form of customisation can help an investor meet those specific objectives.

Passive investment products that deliver market performance at a relatively low cost are becoming increasingly important tools in the portfolios of survey respondents in Europe.

Around the world, 63% of participating institutions say that known inefficiencies should be addressed and removed (see Chart 2). “Institutions see these inefficiencies, like the over-representation of issuers with relatively high levels of outstanding debt in fixed-income indices, as such an important issue that one in five study participants say they would be willing to pay to have them removed,” said Andrew McCollum, a consultant with Greenwich Associates. “This is strong evidence that institutional investors may benefit from considering a more customised beta strategy.”

CHART 2: BELIEF THAT KNOWN INEFFICIENCIES SHOULD BE REMOVED



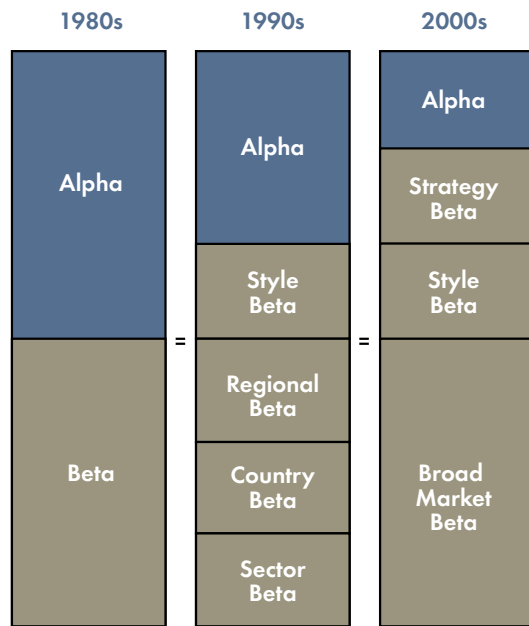
Source: Northern Trust Customised Beta Study 2011
 Base: Total - 120 respondents, Europe - 40 respondents

EVOLUTION OF PASSIVE PORTFOLIO CONSTRUCTION

Among the many trends contributing to the growing popularity of passive investment strategies was the adoption of alpha/beta separation portfolio construction techniques. Investors identified index investing as providing a foundation of low-cost “beta” that is then complemented and supplemented with higher-cost alpha in the form of actively managed products. However, the survey indicates that the relevance of that view of alpha/beta separation is now being questioned by some investors. Index strategies can play roles in a portfolio’s core holdings (beta) as well as the satellite or returns-seeking (alpha) components of an overall investment strategy. Asset allocation also has evolved from traditional asset class and style buckets to allocations based on specific risk factors and objectives. Index management aligns with the risk-factor or objective-focused allocation approach because it allows investors to tailor specific beta exposure and provides greater transparency.

Also affecting the use of passive investment strategies among institutional investors is the blurring of the distinction between alpha and beta. Chart 3 (on page 7) illustrates the evolution of the role beta plays in portfolio construction. In the past 10 years, however, indices have been launched that offer both style beta (value weighted) and strategy beta, essentially shifting the line between alpha and beta. This blurring of the divide between true beta and alpha could explain why 41% of European respondents do not consider alpha-beta separation very relevant to their portfolios – a position not witnessed in the North America- or Asia-domiciled respondents.

CHART 3: EVOLUTION OF BETA



Source: MSCI

As stated earlier, just over one-third of institutions in our survey noted concerns about bias inherent in traditional cap-weighted and alternative indices, which could make customised beta an effective strategy for them. In fact, 40% of institutions globally identified customised beta as being relevant to their current portfolio construction models.

Clearly, many institutions are continuing to use portfolio construction concepts in which cap-weighted indices play a central role, and have not adopted a more customised approach to their passive investing. We anticipate, given the attractiveness of passive investing’s fundamental tenets, such as transparency, liquidity and low turnover, that further adoptions of these newer approaches will occur fairly quickly.

It is also likely that many investment funds are moving towards a customised beta approach without even recognising it. “As the market evolves, what we once considered to be part of our alpha generating portfolio five years ago, we now consider part of our passive portfolio,” explains one investor.

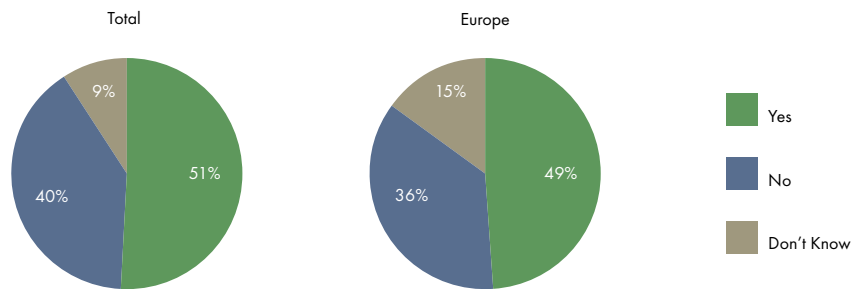
EARLY DAYS FOR CUSTOMISED BETA

Since their introduction a decade ago, alternative-weighted indices have developed a significant user base in Europe. A recent EDHEC-Risk European Index Survey* revealed that 45% of respondents use alternative weighted indices for equities and approximately 15% use them in the bond area. This indicates a growing interest outside of a traditional cap-weighted index – a trend also seen in Northern Trust’s research.

As the concept of customised beta comes out of its infancy, more investors may turn to these strategies to address their specific investment objectives. Our research shows that almost half of European institutions say they would use customised beta to address their objectives if these tools were readily available (see Chart 4, on page 8).

* EDHEC-Risk European Index Survey, October 2011.

CHART 4: INTEREST IN EXPLORING CUSTOMISED INDICES



Source: Northern Trust Customised Beta Study 2011
Base: Total - 108 respondents, Europe - 33 respondents

The institutions surveyed see two primary benefits to a customised beta approach: improved risk/return trade-offs and increased diversification. Beyond these two primary benefits, institutions can use customised beta to meet a number of goals, which differ somewhat by region:

Europe

- European institutions see customised beta strategies as having the potential to boost transparency within their passive portfolios at a time of increasing oversight and regulation.
- European institutions also are among the world's most enthusiastic proponents of socially responsible investing (SRI) and environmental, social and governance (ESG) investment practices. Customised beta approaches can provide an efficient screening tool for institutions looking to comply with these standards.

Asia

- Asian institutions see customised beta as a possible tool for eliminating inefficiencies within their portfolios that they see arising from methodological and weightings biases of existing indices.
- Many Asian institutions are also in the process of incorporating alpha/beta separation and core/satellite portfolio construction approaches – models in which customised beta can serve as an important tool.

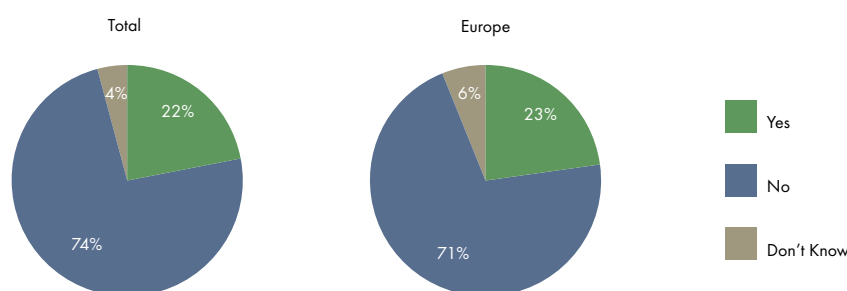
North America

- Although passive funds make up a smaller share of institutional portfolios in North America, investors in the United States and Canada are planning to increase allocations to passive strategies in the coming three years, and many of these institutions see customised beta as a means of expanding their market coverage as they do so.

ANALYSIS MATTERS

Although many institutions around the world recognise the benefits and potential uses for customised beta, only 22% of institutions participating in the Northern Trust study (see Chart 5) have conducted analyses of the short- and long-term implications of customised beta approaches. This finding reflects the fact that institutions in general spend the majority of their time and resources on active management – in particular, on the task of selecting managers. Globally 41% of respondents spend more than 30% of their time on manager selection.

CHART 5: CONDUCTED AN ANALYSIS OF SHORT- AND LONG-TERM IMPLICATIONS OF CUSTOMISED BETA APPROACHES

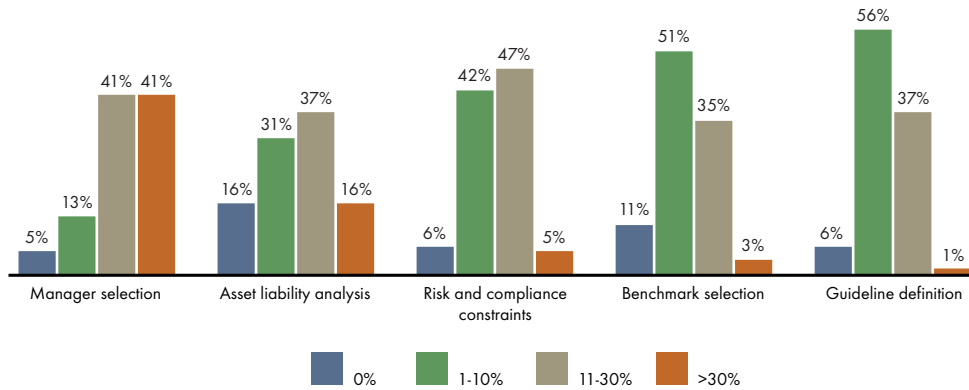


Source: Northern Trust Customised Beta Study 2011
Base: Total - 106 respondents, Europe - 31 respondents

In contrast, for about two-thirds of the respondents (62%), benchmark selection occupies 10% or less of the time they devote to investment activities and just over one-third (35%) spends 11% to 30% of their time on this activity (see Chart 6, on page 10). In both Europe and North America the majority of institutions dedicate less than 10% of their time to benchmark selection. However, in Asia, half of all respondents spend between 11% and 30% of their time reviewing and selecting benchmarks, much higher than the global average of 35%. Interestingly, a slightly higher proportion of respondents in Europe focus more than 30% of their time on benchmark selection: 7% compared to 2% in North America and 0% in Asia.

Nevertheless, with nearly half of all institutions saying it is very important that the benchmarks they invest against accurately reflect the specific market universe exposure they desire in their portfolio, it seems inevitable that institutions will have to start devoting more time and using new approaches in benchmark selection as the number of available benchmarks continues to grow and they expand their use of passive strategies. After all, even if you spend a considerable amount of time selecting your manager, you could still fail to meet your investment goals if you choose the wrong benchmark. Different methodologies can create very different results, and a thorough review of benchmarks should include a variety of factors, including rebalancing, liquidity and weighting approaches.

CHART 6: PROPORTION OF TIME ALLOCATED TO ACTIVITIES RELATED TO INVESTMENT DECISIONS



Source: Northern Trust Customised Beta Study 2011
 Base: 98 respondents

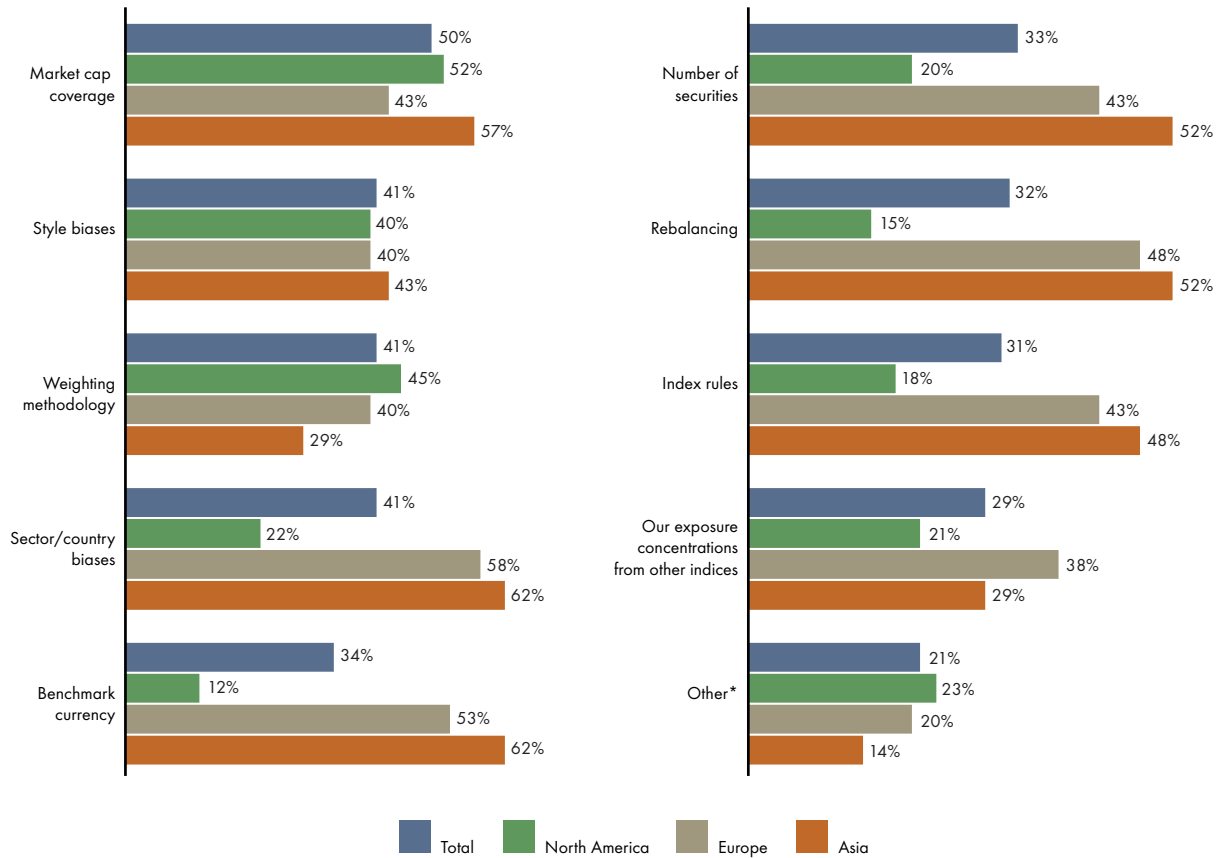
Benchmark Selection Criteria

Chart 7 (on page 11) shows the most important factors considered by institutions when selecting benchmarks. At a global level, four factors drive benchmark selection:

- Market cap coverage;
- Style biases;
- Weighting methodology; and
- Sector/country biases.

North American institutions rely primarily on the first three criteria when selecting a benchmark. In contrast, institutions in Asia and Europe regularly consider a much broader range of factors, including benchmark currency, number of securities, rebalancing policies and index rules. At present, only 29% of institutions around the world consider their own levels of exposure concentration from existing index investments when selecting a new benchmark. We expect investors to increasingly recognise the need to apply more comprehensive levels of exposure concentration analyses to institutional portfolios, ensuring that total overall exposures are in line with goals and expectations.

CHART 7: SELECTION CRITERIA FOR EVALUATING AND CHOOSING AN INDEX FOR PASSIVE INVESTMENTS



Source: Northern Trust Customised Beta Study 2011

Base: Total 121, North America 60, Europe 40, Asia 21

* North America "other" includes: markets representation, risk measures, consultant recommendations, correlation, cost, not a consideration; Asia "other" includes: domestic currency, tracking error, replicability; Europe "other" includes: turnover, replicability, superiority, transparency

Applying Customised Beta: SRI and ESG

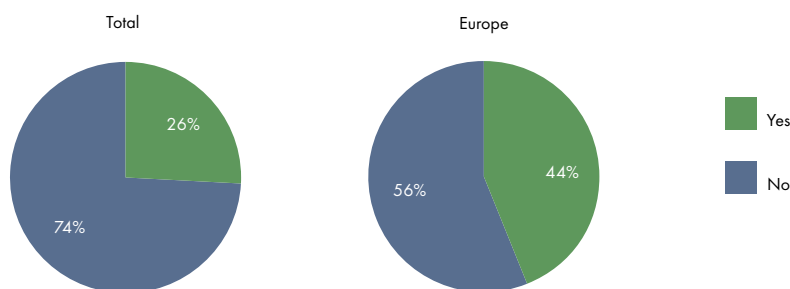
One of the clearest applications for customised beta is as a tool for institutional compliance with SRI or ESG policies. Achieving SRI or ESG objectives using a traditional cap-weighted index can be challenging given that institutional needs can differ from investor to investor. A number of alternative indices for specific SRI or ESG concerns now exist, but by their nature, these may not perfectly match each individual institution's needs. By customising a benchmark through exclusions or tailored indices and then managing to it passively, investors can achieve index exposure within their SRI or ESG needs without the potential costs associated with managing actively.

Worldwide, about a quarter (26%) of study participants normally incorporate SRI or ESG considerations into their strategic planning or investment manager selection and review processes. That share jumps to 44% of participating institutions in Europe (see Chart 8), with Nordic, Dutch and French investors most likely to use SRI investments* according to research from Greenwich Associates, most likely due to regional regulatory stipulations.

Organisations using SRI or ESG mandates tend to be the larger institutions with sufficient resources to dedicate to the evaluation and monitoring process. Around the world, 44% of institutions say their SRI/ESG allocations have increased in the past two years. Fifty-three percent of European institutions have expanded these allocations during that period, as have half of Asian institutions.

Approximately one third of institutions globally and 45% of institutions in Europe implement SRI/ESG policies through a process of positive or negative screening. As the controller for a North American endowment explains: “The important issue, when you start to screen index funds, is do you ask your manager to screen those funds and eliminate names or do you ask them to eliminate certain names and then find replacement names to make sure your sector weight is still in balance? That, for us, has been an issue.”

CHART 8: INCLUDED SRI OR ESG CONSIDERATIONS IN STRATEGIC PLANNING OR INVESTMENT MANAGER SELECTION PROCESSES – EUROPE



Source: Northern Trust Customised Beta Study 2011
 Base: Total - 109 respondents, Europe - 34 respondents

* Greenwich Associates, Continental Europe Investment Management research, August 2011.

A GROWING ARRAY OF BETA OPTIONS

As institutions in Europe and other global markets increase their investments in passive products, the range of available strategies has evolved, moving further along the beta spectrum. This evolution has led to myriad new approaches ranging from alternatively weighted indices to customized beta approaches that allow institutions to choose the type of index exposure that will best meet their specific needs.

A key observation from the survey results is investors are investing with purpose. Northern Trust believes the introduction of a broader array of beta solutions is a positive development, providing investors with opportunities to refine alignment with their investment goals. The market today remains segmented, with some investors gravitating towards traditional index solutions while others are exploring the possibilities of custom indices. The spectrum of beta to alpha solutions has never been better, providing an excellent opportunity to review your investment goals with your asset managers and consultants, and to explore implementation opportunities suitable to your investment purpose.

FOR MORE INFORMATION

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SAMPLING OF PARTICIPANT COMMENTS

How have you seen the role of passive shifting over the past three years?

“Passive management has now become more important than active management.” (Asia)

“The role of passive has been increasing, because: 1) We believe that 95% of our return comes from asset allocation rather than from managers selection. 2) We weren’t that happy with the active portfolio managers as they have underperformed their benchmark for some time and then we came to the conclusion that it’s more of a cyclical sort of a decision that you need to take from time to time. When the market is going up there is no advantage having an active portfolio mandate because at the minimum you want to share the same rate of the market performance as of the benchmark.” (Asia)

“We made the shift from active management, in the middle of last year, to passive for the whole portfolio. Part of the reason was different indices tracked but also the cost aspect of the fees.” (Europe)

“It has increased; because of the volatility in the actively managed portfolios, we purposely migrated monies into a passive mandate.” (North America)

As you express concern about standard index weighting schemes, what alternatives have you explored?

“It is becoming a big issue. So far we haven’t looked at indices very closely, but many banks are now offering indices which are for your own portfolio, and that is what we are looking at very shortly.” (Europe)

“What we are doing is equally weighted indices, imposing caps on certain individual stocks, as well as GDP weighted.” (Europe)

“Market cap weighted, fundamental basis, volatility basis, low volatility.” (Europe)

“GDP weighting, especially in fixed income. We’ve explored fundamental weighted indexing.” (North America)

Would you be interested in exploring the use of customised indices to address your fund’s objective?

“We are interested in customised indices of fixed income (global fixed income, in particular) indices. Global bond indices that include emerging markets as well would be appealing to us.” (Asia)

“For now we are making purposeful efforts to select traditional indices. We do so because we are trying to be in line with what other pension funds are doing, as we want to contain our risk exposure to a conventional level, rather than taking a bold step to become a pioneer in using innovative indices.” (Asia)

What challenges or risks would you envision if you were to select a nontraditional index for a passive investment?

“1) Replicability: we need to verify that a nontraditional index model can be replicated. 2) Superiority: we need a proof that a nontraditional index is better than a traditional one. 3) Transparency: Customised products are usually less transparent.” (Asia)

“One of the challenges is how we can persuade our investment committee. Committee members are not necessarily investment specialists. They tend to avoid innovating ideas which requires ample explanations. Therefore, they tend to be agreeable to low risk type of investments.” (Asia)

“I think first of all the fact that this is relatively new and doesn’t have a proven track record.” (Europe)

“Regret by trustees is the biggest so basically the risk is you spend your time looking at what you would have done had you been in a market cap weighted and inevitably there will be some periods of underperformance and people would start getting worried. We would get board resistance. I think because it is a move of what is traditionally done it feels risky to them so it is quite a lot of effort to get them to do it and then when you do, you do it at a time when the time isn’t optimal and then you get this regret.” (Europe)

“There would be a need for appropriate governance discussions with investment committee. Challenges to explaining variations in performance to trustees and investment committee.” (North America)

PARTICIPATING FIRMS (DISCLOSED)

For this survey, 121 firms globally participated, representing more than US\$500 billion invested assets. The following is a partial list of those who participated.

Europe (total respondents: 41)

AEGON Asset Management UK
 Agfa-Gevaert N.V.
 Allmaenna Pensionsfonden 2
 Continental AG
 Deutsche Post AG
 Gamla Livfoersakringsaktiebolaget
 SEB Trygg Liv
 Gjensidige Forsikring ASA
 Kapan Pensioner
 Foersaekringsfoerening
 Kempen Capital Management NV
 Kreissparkasse Boeblingen
 Landeshauptstadt Muenchen
 Stadtkammerei
 Pensioenfonds Medewerkers
 Apotheken
 Pensionskassen for Borne- og
 Ungdomspaedagoger PBU
 Philip Morris GmbH
 Philip Morris Holland B.V.
 St. Pensioenfonds Predikanten
 Zuerich Insurance Company

Asia (total respondents: 21)

Aitetsu Ren Kosei Nenkin Kikin
 Kyobo Life Insurance Co., Ltd.
 Shun Hing China Investment Ltd.
 Tokyo Kaijo Nichido Kigyo
 Nenkin Kikin

North America (total respondents: 59)

ABB, Inc.
 Accenture
 Alcoa Inc.
 Allegheny Technologies Incorporated

ALLETE, Inc.
 Ball Corporation
 Baxter International Inc.
 Bayer Corporation
 Blue Cross and Blue Shield of
 Massachusetts, Inc.
 California Community Foundation
 Canadian Broadcasting Corporation
 City of Grand Rapids General,
 Police & Fire Retirement System
 City of Los Angeles Fire & Police
 Pension System
 Concordia University
 COPE 378/ICBC Pension
 Denver Employees Retirement Plan
 El Paso County Retirement Plan
 Employees' Retirement System &
 Firefighters' Pension System of K.C.
 General Electric Company
 Genesee County Employees'
 Retirement System
 Halifax Regional Municipality
 Pension Plan
 IWA Forest Industry Pension
 and Plans Ltd.
 Laborers' District Council and
 Contractors' Pension Fund of Ohio
 Los Angeles Water & Power
 Employees' Retirement Plan
 Louisiana School Employees'
 Retirement System
 LSU Foundation
 Massachusetts Carpenters
 Benefit Funds
 Michigan Catholic Conference
 Middlebury College

Minnesota State Board of Investment
 NorthShore University HealthSystem
 NSTAR
 Ohio Public Employees Deferred
 Compensation Program
 Pacific Salmon Commission
 Pentegra Retirement Services
 Plymouth County Retirement System
 Prime Buchholz (on behalf of The
 United States Olympic Foundation)
 Quincy Retirement System
 Rockford Firemen's & Police
 Pension Fund
 Sharp Electronics Corporation
 Southern Ute Indian Tribe
 Telus Communications Inc. (BCT)
 Texas Presbyterian Foundation
 The Pittsburgh Foundation
 The Royal Bank of Scotland
 Group plc
 The Salvation Army
 The TJX Companies, Inc.
 The UCLA Foundation
 Town of Greenwich
 Retirement System
 University of British Columbia
 Faculty Fund Inc.
 UPMC Health System
 URS Corporation
 Workers' Compensation Board
 of Nova Scotia
 Workplace Health, Safety and
 Compensation Commission
 of New Brunswick
 YMCA Retirement Fund

The above reflects a list of clients selected based on their participation in this survey that have consented to the use of their name. It is not known whether the listed clients approve of Northern Trust or any services provided.

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