



LINE OF  
**SIGHT**

Customized  
Beta

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**Changing  
Perspectives  
on Passive  
Investing**

North American 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.

## CUSTOMIZED BETA

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### *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, customized 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.

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.

February 2012

## 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, 59 of which were in North America. 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 epitomized 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 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 June 30, 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](http://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
<b>S&amp;P Equal Weight Index Series</b>	Equal Weighted/ Alternatively Weighted	2003
<b>FTSE RAFI Index Series</b>	Fundamental	2005
<b>S&amp;P Dividend Aristocrats</b>	Dividend	2005
<b>MSCI High Dividend Index Series</b>	Dividend	2006
<b>MSCI Minimum Volatility Series</b>	Volatility/Risk/Risk + Factor	2009
<b>MSCI Factor Index Series</b>	Fundamental	2009
<b>MSCI Value Weighted Index Series</b>	Fundamental	2010
<b>FTSE Active Beta Index Series</b>	Fundamental	2010
<b>FTSE StableRisk Index Series</b>	Volatility/Risk/Risk + Factor	2010
<b>MSCI Risk Weighted Index Series</b>	Volatility/Risk/Risk + Factor	2011
<b>FTSE TOBAM</b>	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 customized beta.

## SPECTRUM OF BETA

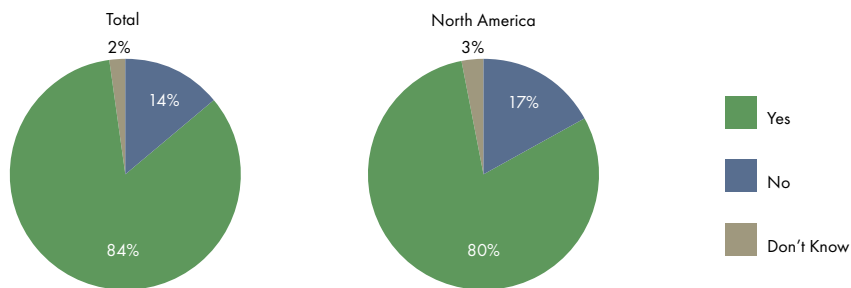


## INVESTING WITH PURPOSE

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 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 organizational 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 North America, 80% of institutions say this is true, as do 86% of Asian institutions and 88% of institutions in Europe.

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



Source: Northern Trust Customized Beta Study 2011  
Base: Total - 121 respondents, North America - 59 respondents

## INCREASED FOCUS ON PASSIVE INVESTMENTS

As institutions forgo relative performance measures in favor 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.

North American institutions are much less likely than their European and Asian counterparts to devote relatively large portions of their equity and fixed income portfolios to passive strategies. Less than 30% of North American institutions participating in the study say passive funds make up more than 40% of their equity assets, and approximately 20% have passive allocations of that level in fixed income. By 2014, one third of North American institutions expect passive strategies to make up more than 40% of equity assets and 28% expect passive funds to hit that mark in fixed income. 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.

One North American 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.”

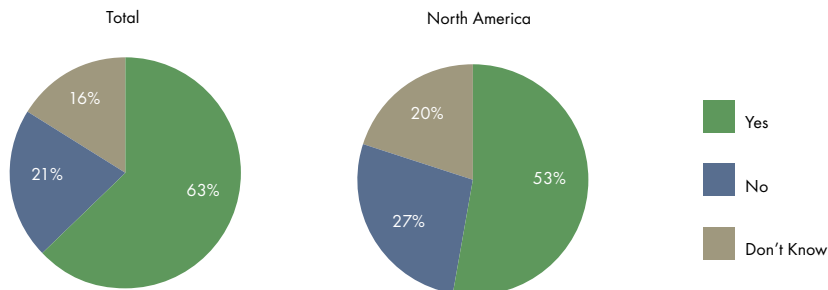
### **Benchmark Concerns**

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 capitalization 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 customized 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.

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 customized beta strategy.”

**CHART 2: BELIEF THAT KNOWN INEFFICIENCIES SHOULD BE REMOVED**



Source: Northern Trust Customized Beta Study 2011  
 Base: Total - 120 respondents, North America - 59 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.

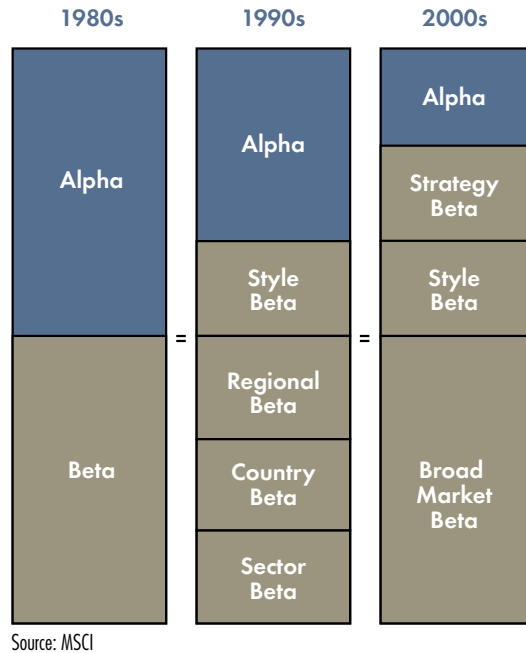
Also affecting the use of passive investment strategies among institutional investors is the blurring of the distinction between alpha and beta. Chart 3 (on page 7) illustrates the evolution of the role beta plays in portfolio construction. In the past 10 years, however, indices have been launched that offer both style beta (for example, 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.

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 customized beta an effective strategy for them. In fact, 40% of institutions globally identified customized 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 customized 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 customized beta approach without even recognizing 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.

CHART 3: EVOLUTION OF BETA

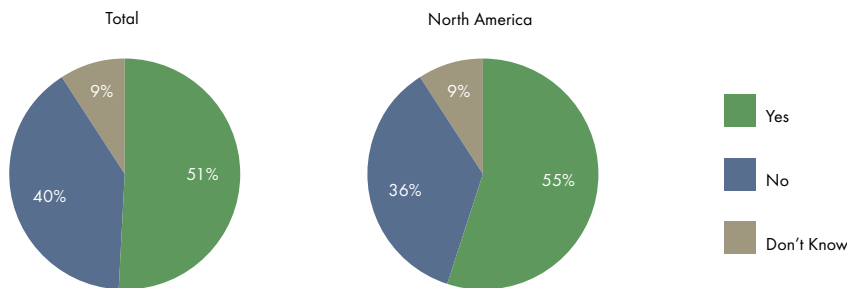


Source: MSCI

#### EARLY DAYS FOR CUSTOMIZED BETA

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

CHART 4: INTEREST IN EXPLORING CUSTOMIZED INDICES



Source: Northern Trust Customized Beta Study 2011  
 Base: Total - 108 respondents, North America - 56 respondents

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

#### **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 customized beta as a means of expanding their market coverage as they do so.

#### **Europe**

- European institutions see customized 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. Customized beta approaches can provide an efficient screening tool for institutions looking to comply with these standards.

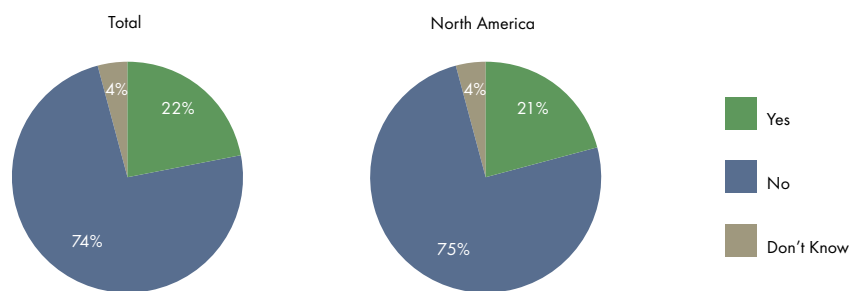
#### **Asia**

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

## ANALYSIS MATTERS

Although many institutions around the world recognize the benefits and potential uses for customized 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 customized 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 CUSTOMIZED BETA APPROACHES**

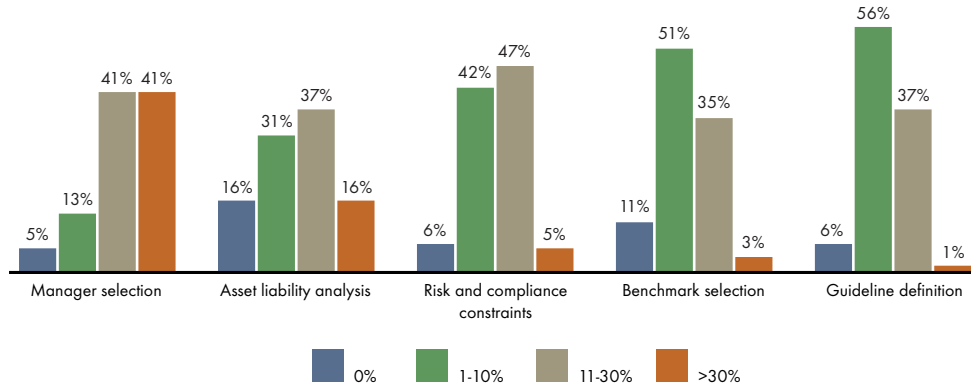


Source: Northern Trust Customized Beta Study 2011  
Base: Total - 106 respondents, North America - 56 respondents

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%.

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 Customized Beta Study 2011  
Base: 98 respondents

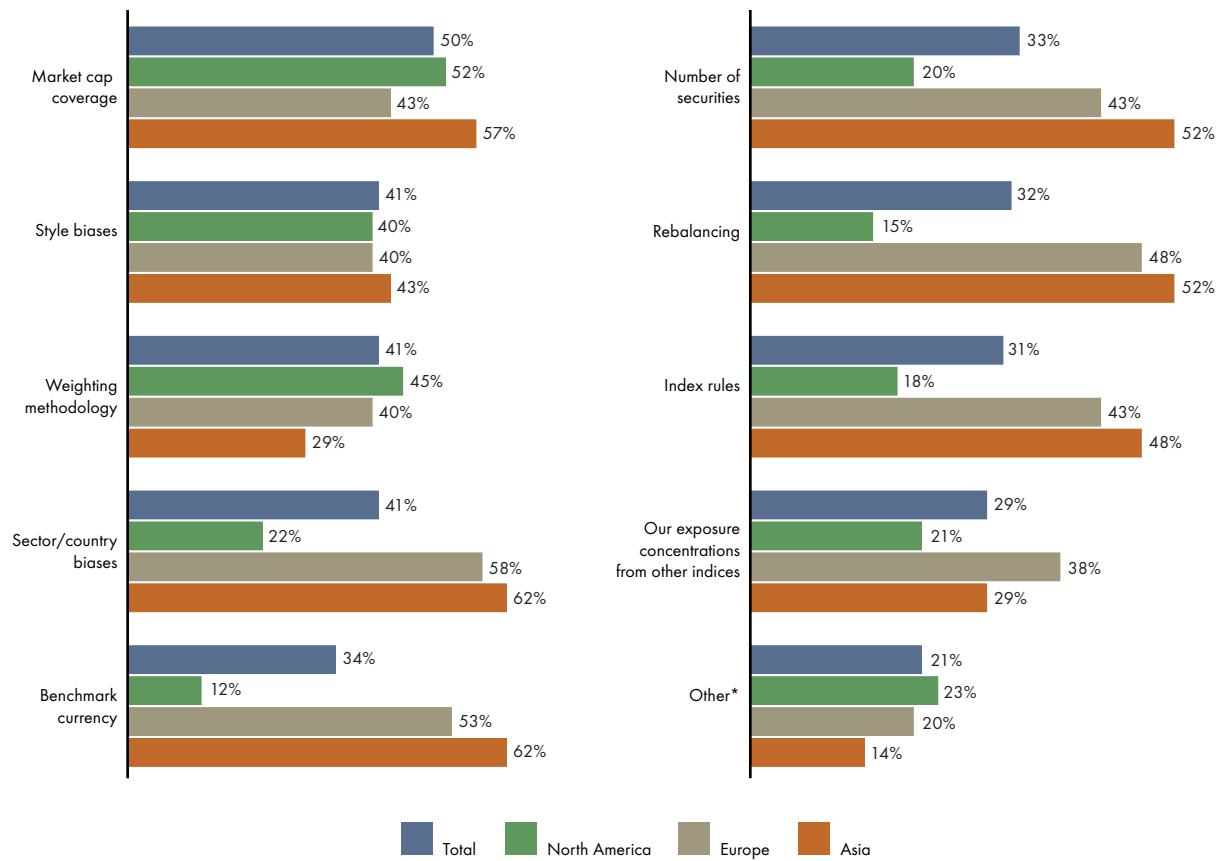
**Benchmark Selection Criteria**

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 recognize 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 Customized 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 Customized Beta: SRI and ESG

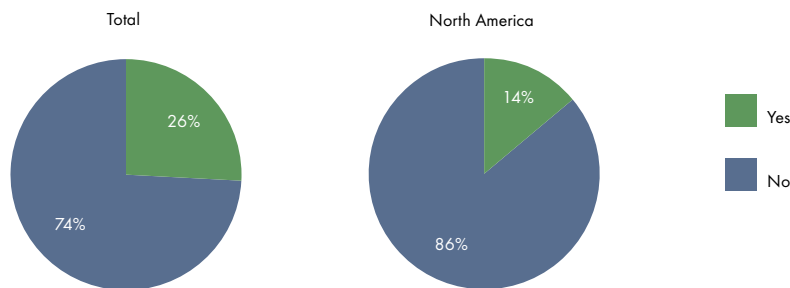
One of the clearest applications for customized beta is as a tool for institutional compliance with SRI or ESG policies. Achieving SRI or ESG objectives using a traditional cap-weighted index can be challenging given that institutional needs can differ from investor to investor. A number of alternative indices for specific SRI or ESG concerns now exist, but by their nature, these may not perfectly match each individual institution's needs. By customizing 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 (see Chart 8). Organizations using SRI or ESG mandates tend to be the larger institutions with sufficient resources to dedicate to the evaluation and monitoring process. While relatively few institutions in North America include SRI or ESG considerations in these processes, the practice is quite common in Europe, where 44% of participating institutions do so.

Around the world, 44% of institutions say their SRI/ESG allocations have increased in the past two years. That growth is driven by European institutions, 53% of which have expanded these allocations over the past two years, and Asian institutions, about half of which have increased SRI/ESG allocations over the period. Only 13% of North American institutions in the survey expanded these allocations over the past two years.

Approximately one third of institutions globally and more than one-quarter (27%) of institutions in North America 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**



Source: Northern Trust Customized Beta Study 2011  
Base: Total - 109 respondents, North America - 56 respondents

## A GROWING ARRAY OF BETA OPTIONS

As institutions in North America 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 that, although investors do not allocate a large proportion of their time to benchmark selection, they are investing with purpose – focused on meeting investment objectives rather than benchmark outperformance. 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?*

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

“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)

“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)

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

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

“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)

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

“Will probably want to get to some customized passive strategies, so that matching of assets and liabilities is tight.” (North America)

“We are interested in customized 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)

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

“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)

“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)

“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: Customized 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)

## PARTICIPATING FIRMS (DISCLOSED)

For this survey, 121 firms globally participated, representing more than \$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  
 Foersaekringsfoering  
 Kempen Capital Management NV  
 Kreissparkasse Boeblingen  
 Landeshauptstadt Muenchen  
 Stadtkaemmerer  
 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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