Princeton, August 2, 2002

MSCI Methodology Summary

EQUITY INDICES

Summary of Index Methodology for a Family of MSCI US Equity Indices

I. INTRODUCTION

For over 30 years, MSCI has been constructing global equity benchmark indices that contribute to the international investment management process. These indices serve as relevant and accurate performance benchmarks, effective research and asset allocation tools, and are used as the basis for various investment vehicles designed to gain and/or manage exposure to international markets. As such, the MSCI international equity indices fulfill the investment needs of a wide variety of international investors. In constructing these indices, MSCI consistently applies its equity index construction and maintenance methodology across developed and emerging markets. This consistency of approach makes it possible to aggregate individual country and industry indices to create meaningful regional and composite benchmark indices for investing internationally.

MSCI is now developing US equity benchmark indices from the perspective of US domestic investors. In this regard, this document presents a summary of the methodology, which will be used to construct a family of MSCI US equity indices. This new index series will reflect the full breadth of investment opportunities across capitalization size, value and growth investment styles and industry/sector groups within the US equity market.

II. INDEX CONSTRUCTION AND MAINTENANCE METHODOLOGY

1. Defining capitalization size segments

1.1 Defining the equity universe and its size segments

MSCI will include in the US equity universe all listed equity securities of US domiciled companies traded on the NYSE, AMEX, and the NASDAQ, except investment trusts (other than REITS), mutual funds, and equity derivatives. When appropriate, some non-US incorporated companies may also be considered for inclusion in the MSCI US universe based on an analysis and interpretation of a number of factors. Some of these factors include the company's main equity trading markets, shareholder base and geographical distribution of operations (in terms of assets and production).

MSCI will segregate the US equity universe in three segments, namely:

- The investable market segment
- The micro-cap segment, and
- The lower micro-cap segment

The investable market segment will include all securities of reasonable size, liquidity, and investability that can cost-effectively be represented in institutional and pooled retail portfolios of reasonable size. This segment will also allow investors to gain exposure to a significant portion of the performance of the US equity universe. Analysis shows

that the 2500 largest companies by total market capitalization, which cover approximately 98% of the US equity universe, form an appropriate representation of the investable market segment. The investment performance characteristics of this investable market segment will be represented and measured by an investable market index.

The micro-cap segment will comprise around 2500 companies with a market capitalization rank lower than the 2500 companies in the investable market segment. The micro-cap segment is estimated to cover around 1.8% of the market capitalization of the US equity universe. The investment performance characteristics of this segment of the US equity universe will be represented and measured by a micro-cap index.

The lower micro-cap segment will cover approximately the bottom 0.2% of the market capitalization of the US universe, and will not be represented by an index.

The combination of the investable market index and the micro-cap index will form the US total market index, which will thus include around 5000 of the largest companies in the US equity universe ranked by full market capitalization.

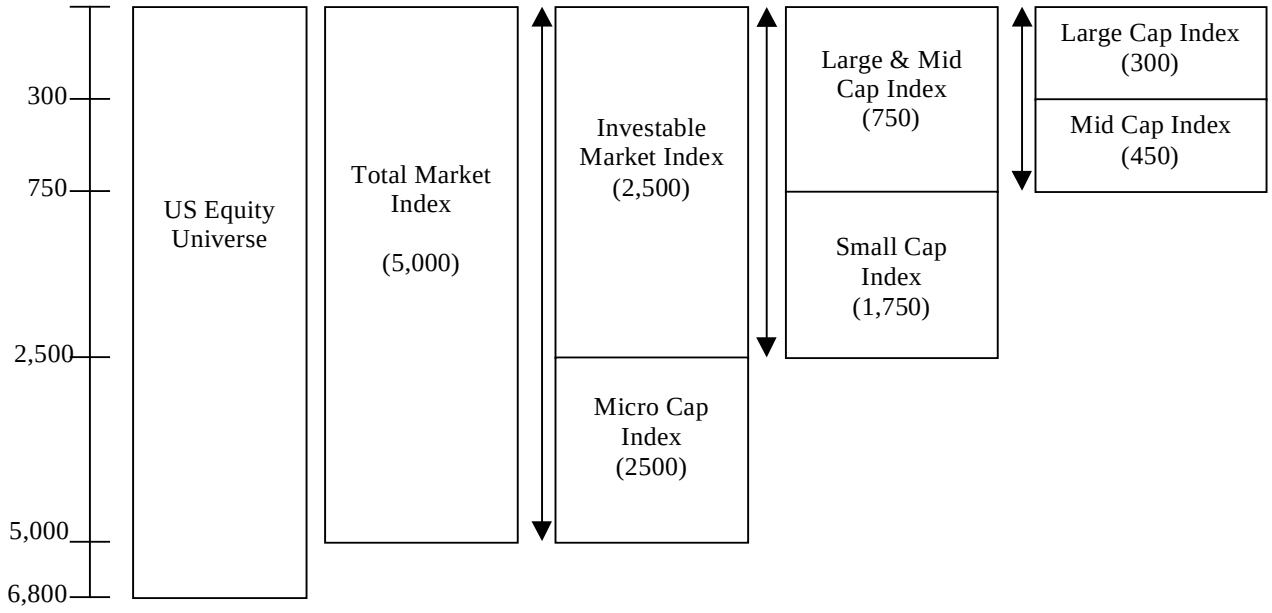
1.2 Defining the Large, Mid and Small Capitalization Segments

MSCI will define the US large-cap index as consisting of the 300 largest companies by full market capitalization in the investable market segment, the mid-cap index as comprising the next 450 companies, and the small-cap index as consisting of the remaining 1750 companies.

The large and mid-cap indices, as defined above, will also be combined to create a separate large & mid-cap index of the 750 largest companies in the investable market segment ranked by full market capitalization.

The design and structure of the various capitalization size indices in the MSCI US equity index family is represented below.

US equity indices: Index and Size Segments (Number of Companies)



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MSCI will use a fixed number of equity securities for defining the cut-off levels for size segments. Analysis shows that using a fixed number of equity securities to specify size cut-off levels leads to better stability and lower turnover in the resulting size sub-indices over time, when compared to using other factors to define size segments, such as percentiles of market capitalization or absolute market capitalization levels.

In making a determination as to what levels of a fixed number of equity securities appropriately define the various size segments within the investable market segment, MSCI considered the behavior of several factors over time. At different levels of a fixed number of companies, MSCI reviewed:

- The absolute market capitalization level of the smallest company
- The marginal contribution to the relevant index of the smallest company
- The cumulative proportion of market capitalization covered
- The liquidity and trading characteristics of companies
- An analysis of the average size of portfolio holdings of a variety of large, medium, and small-cap investment managers

MSCI will periodically review the factors mentioned above and the resulting size cut-off levels in order to ensure that they continue to appropriately define the various size segments. In the event of a structural change, which permanently alters the capitalization characteristics and make-up of the equity market, a redefinition of the number of companies' cut-off levels for the various size segments may become necessary.

1.3 Size index reviews and buffer zones

The MSCI US equity indices will be managed with the objective of reflecting the evolution of equity markets and equity market segments in a timely fashion. In reviewing the various size and style sub-indices, MSCI's goal will be to strike a balance between ensuring that the various sub-indices continue to accurately reflect the different investment processes and their opportunity sets and at the same time minimize index turnover.

In this regard, and consistent with the index methodology employed in maintaining existing MSCI international equity indices, MSCI will reflect significant corporate events in the indices as they occur.

In addition, the size indices will also be fully reviewed on a semiannual basis, at the end of May and November, and partially reviewed at the end of February and August. During these index reviews, MSCI will use "buffer zones" to manage the migration of companies from one size sub-index to another. For instance, an asymmetrical stock buffer zone, consisting of 75 companies on the upside and 100 companies on the downside, will be used around the size cut-off levels between the large and the mid-cap indices. This buffer zone implies that, once the size sub-indices have been constructed according to the design mentioned above, an existing constituent will leave the large-cap index when it drops to a market capitalization rank of 401. Similarly, a mid-cap company will enter the large-cap index when it reaches a market capitalization rank of 225. Buffers zones will also be used between mid and small-cap indices and between small and micro-cap indices, as shown in the table below.

Upside and Downside Buffers for Size Indices (Company Rank)

	Large Cap	Mid Cap	Small Cap	Micro Cap
Size Segment Definition	1-300	301-750	751-2500	2501-5000
Upside Buffer Zone		226-300	601-750	2001-2500
Downside Buffer Zone	301-400	751-1000	2501-3000	

At the semi-annual full index review dates, the process of rebalancing the indices will also ensure that the size indices will contain the number of companies originally used to define each size segment. For example, the large-cap and the mid-cap indices will contain 300 and 450 companies, respectively. The process of bringing the size indices back to the original cut-off levels will be applied after allowing for the migration of companies outside of the buffer zones to the appropriate index. For instance, for the large-cap index, this will be achieved by adding the largest mid-cap companies into the large-cap index, if the latter were to contain less than 300 companies, or by moving the smallest large-cap companies into the mid-cap index if the large-cap index were to contain more than 300 companies. A similar process is applied for the migration of constituents between mid and small-cap indices and, between small and micro-cap indices.

At the partial index review dates, constituents outside of the buffer zones will be moved to the appropriate size sub-index, but they will not be replaced by another company in the original size sub-index. This implies that in between the semi-annual full index reviews the number of companies in the size sub-indices could deviate from the original number used to construct the size sub-indices.

The use of buffer rules is expected to mirror more closely the processes employed by investment managers in managing actual size and style portfolios and to significantly reduce index turnover caused by the temporary migration of companies from one size or style sub-index to another.

2. Defining the Value and Growth Investment Styles

2.1 Two-dimensional, multi-factor approach

In constructing the US equity style indices, MSCI will adopt a two-dimensional framework for style segmentation in which value and growth securities are specified using different attributes. In addition, multiple factors will also be used to specify value and growth characteristics.

Value investment style characteristics for index construction will be defined using the following three variables:

- Book value to price ratio
- 12 months (rolling) forecasted earnings to price ratio
- Dividend yield

In order to combine the above variables, a z-score for each of them will be computed for each security using the market capitalization-weighted mean of the relevant variable. For each security, an equally weighted average of the z-scores of the individual variables will then be computed to represent the combined value attribute for index

construction. For missing variables for a security, the z-score will be set to zero, which is equivalent to assigning the missing variable a value equal to its market average. (Please see the Appendix for more details on the definition and computation of z-scores.)

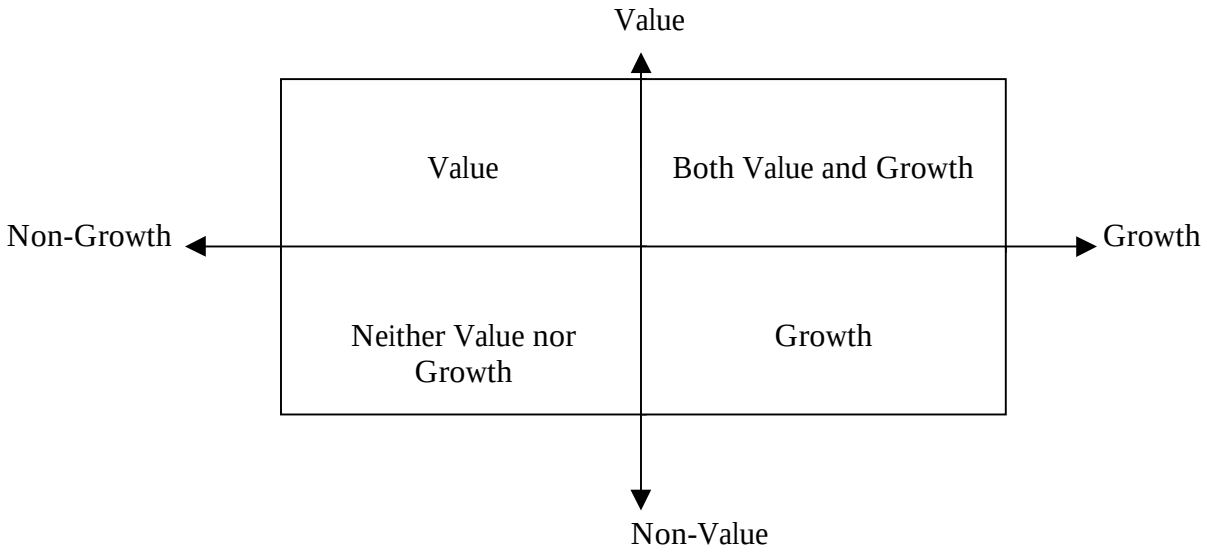
The growth investment style characteristics for index construction will be defined using the following five variables:

- Long term (three to five years) forecasted growth in earnings per share (EPS)
- 12 months (rolling) forecasted growth in EPS
- Current sustainable growth rate of EPS (most recent return on equity (ROE) times retention rate)
- five years historical EPS growth rate
- five years historical sales per share growth rate

In order to compute a combined z-score for growth securities, the z-score for long-term forecasted EPS growth will be given double weight, such that forward-looking and historical measures of growth are equally weighted in the combined growth attribute.

In the two-dimensional, multi-factor framework described above, non-value does not necessarily equal growth. Additionally, some securities can exhibit both value and growth characteristics, while others may exhibit neither. The combined value attribute and the combined growth attribute will be used to determine the overall style characteristics and positioning of each security in the value-growth space, as depicted in the figure below. The line between value and non-value and between growth and non-growth, that is the origin, is drawn at a z-score of zero, which represents the market-weighted average.

US equity indices: Two-dimensional Style Segmentation Framework



2.2 Index design

The objective of style index design is to exhaustively represent the entire market segments by attributing all securities in a given universe to a style index, and not to "double-count" market capitalization, even when a security appears in both the value index and the growth index.

The index design also divides an underlying universe into a value index and a growth index, and targets a 50% market capitalization representation for each style index.

2.3 Attributing securities to style indices

In order to achieve the above-mentioned index design, the attribution of securities and their market capitalization to the appropriate style index will be conducted along the following principles:

- The full market capitalization of securities depicting pure value characteristics will be attributed to the value index.
- The full market capitalization of securities depicting pure growth characteristics will be attributed to the growth index.
- The securities depicting both value and growth characteristics and the securities depicting both non-value and non-growth characteristics will be treated as follows:
    - If a style clearly dominates, the security will be fully attributed to one style only. A style is considered to dominate if it represents at least 80% of a security's style characteristics, measured in terms of a style's contribution to the distance between the origin and the security's combined value and combined growth z-scores. (Please see the Appendix for further details on how the securities and their market capitalization are attributed to the style indices.)
    - If a style does not clearly dominate, the security will be represented in both the value index and the growth index, with the market capitalization only partially attributed to each index. If a given style contributes less than 80% but more than 60% to a security's style characteristics, 65% of the market capitalization of the security will be attributed to this style, while the remaining 35% will be attributed to the other style. If a given style contributes less than 60% but more than 40% to a security's style characteristics, the market capitalization of the security will be split 50/50 between the two style indices. (Please see the Appendix for further details on how the securities and their market capitalization are attributed to the style indices.)

In order to achieve the 50% market capitalization representation target, the style attribution process starts with assigning the security with the strongest combined style score, that is the security that is the furthest away from the origin, to the appropriate style index. This process continues until one of the two style indices reaches its target weight of 50%. The remaining securities are then assigned to the other style index.

2.4 Universe for style segmentation

The value-growth methodology described above will be applied to the large, medium and small-cap size segments independently. The style classification will be applied at the security rather than the company level.

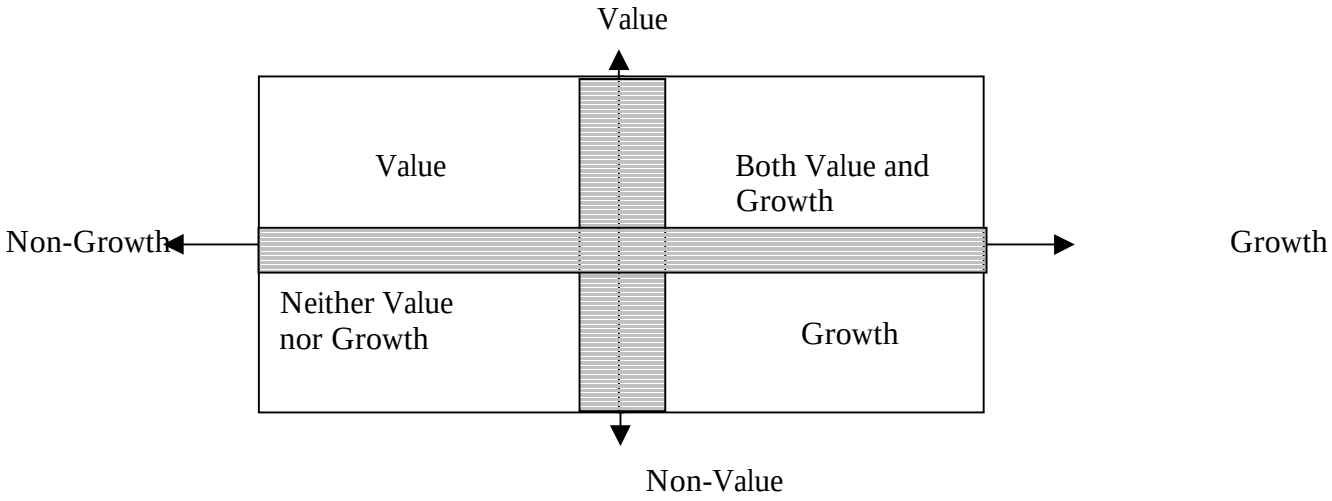
The large-cap value index and the mid-cap value index will be combined to create the large & mid-cap value index. Similarly, the large-cap growth index and the mid-cap growth index will be combined to construct the large & mid-cap growth index.

The large-cap value index, the mid-cap value index, and the small-cap value index will be combined to create the investable market value index. Similarly, the large-cap growth index, the mid-cap growth index and the small-cap growth index will be combined to create the investable market growth index.

2.5 Style index reviews and buffer zones

The various style indices will be rebalanced every six months, at the end of May and November, along with the full review of the size indices. At this time securities and their market capitalization will be attributed to the appropriate style index according to the attribution principles stated above. The attribution process will again target a 50% market capitalization representation for each style index. As in the case of size indices, buffer zones will also be used to manage the migration of companies from one style sub-index to another in between the semi-annual style index review. These buffer zones will apply around the value-growth axis, as shown in the graph below. Securities falling within the buffer zones will not change their style classification at the time of the semi-annual style index review. As a result of the buffer zones the market capitalization coverage of each style index may differ somewhat from the 50% target.

US equity indices: Style Segmentation and Buffer Zones



3. Free Float-Adjusting Constituent Weights in US equity indices

Although the full market capitalization of companies is used as the basis for determining the various size segments, MSCI will free float adjust the market capitalization of constituents in the US equity indices in order to reflect the availability of shares from the perspective of US domestic investors.

MSCI defines the domestic free float of a security as the proportion of shares outstanding that are deemed to be available for purchase in the public equity markets by US domestic investors. Therefore, domestic free float excludes strategic investments in a company, such as stakes held by federal, state and local governments and their agencies, controlling shareholders and their families, the company's management or another company. No foreign ownership limit will be applied in the domestic free float calculation.

4. Global Industry Classification Standard (GICS)

MSCI has designed, in conjunction with Standard & Poor's, the Global Industry Classification Standard (GICS)[SM], which provides a universal approach to industry classification of securities and forms the basis for achieving MSCI's objective of reflecting broad and fair industry representation in its international equity indices. MSCI will also apply the GICS in the construction and maintenance of its US equity index series, as well. Common features between MSCI US domestic and international equity indices, such as the use of GICS, will improve investors' ability to better measure and monitor the risk and attribute the performance of global equity portfolios.

APPENDIX

INTRODUCTION

This appendix explains what a z-score is and how it is used in the proposed Value/Growth methodology. It also details how the attribution of a value and growth security to both value and growth styles or to only one style is determined.

DEFINITION OF Z-SCORE

Computing a z-score is a widely-used way to standardize a variable in order to combine it with another variable which has a different unit of measurement and a different scale.

For instance, a company has the following ratios as of end of January 2002: E/P=0.066 BV/P=0.417

If we were to take the average of these two raw variables, we can see that the contribution of the E/P would be negligible compared to the BV/P.

The z-score is defined as follows:

$$z-score = \frac{x-\mu}{\sigma}$$

where:

- x is the value of the variable for a given security
- μ is the country average value of the variable
- σ is the standard deviation of the variables in the country

The table below illustrates the calculation of z-scores for two companies:

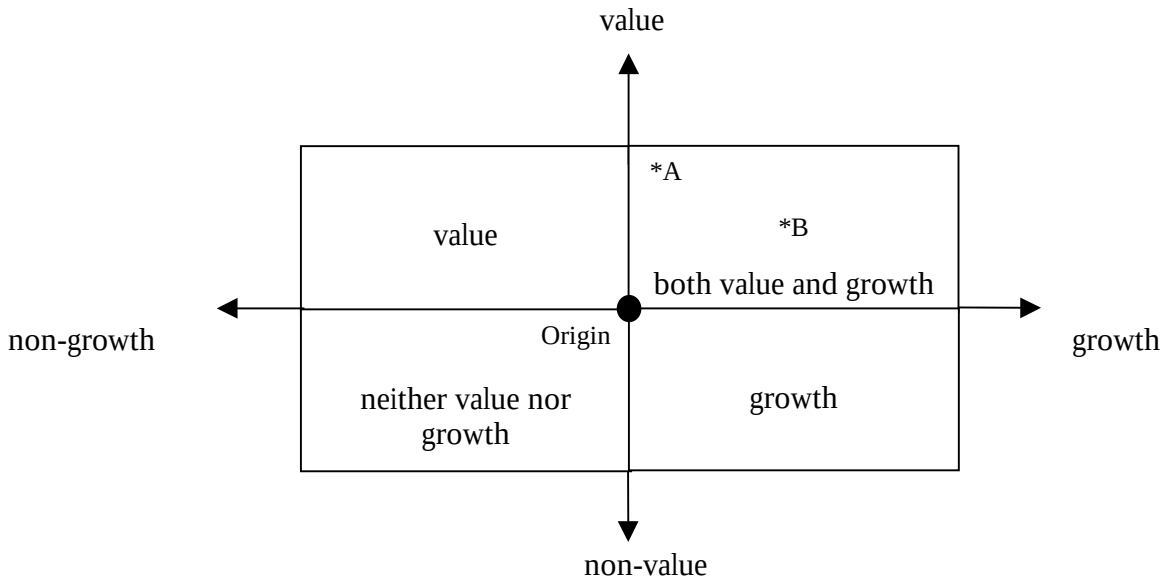
Table 1	Company A	Company B
Dividend Yield	3.5	0.9
Index Div. Yield for Country	2.5	2.5
Div. Yield Std Deviation for Country	1.38	1.38
Div Yield z-score	0.72	-1.16

Z-scores are unitless (both numerator and denominator are expressed in the same unit) standardized measures, which means that they have a mean value of zero and a standard deviation of 1.

A z-score of zero would mean that the security has the same Dividend Yield value as the one of the index, i.e. 2.5. A z-score of 0.72 for Company A means that its Dividend Yield value of 3.5 is 0.72 standard deviation above the market average Dividend Yield of 2.5.

ATTRIBUTION OF VALUE AND GROWTH SECURITIES TO A STYLE

Figure 1: Bi-dimensional Style Segmentation Framework



Consider the two securities A and B represented in the graph above in the "both value and growth" quadrant. Assume that the value and growth scores for each of the securities are as follows:

Table 2	A	B
value score	0.8	0.5
growth score	0.2	0.5

In order to determine how to attribute these securities and their market capitalization to the style indices, first compute the 'distance' of each security to the origin. The origin is defined by the intersection of the value/non value axis and the growth/non growth axis. A security at the origin would have both a combined value z-score and a combined growth z-score of 0.

The distance is computed as follows:

$$d = \sqrt{value\ score^2 + growth\ score^2}$$

$$d_A = \sqrt{0.8^2 + 0.2^2}$$

Then, compute the contribution of each score to the distance as follows:

$$value\ contribution = \frac{value\ score^2}{\text{distance}^2} \qquad value\ contribution_A = \frac{0.8^2}{0.825^2}$$

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$$growth\ contribution = \frac{growth\ score^2}{\text{distance}^2} \qquad growth\ contribution_A = \frac{0.2^2}{0.825^2}$$

Table 3	A	B
distance to the origin	0.825	0.707
value contribution to the distance	94%	50%
growth contribution to the distance	6%	50%

As table 3 shows, the value score of the security contributes 94% to the total distance, meaning that the value score clearly dominates the growth score. As the value contribution to the distance is greater than the 80% limit, we would fully attribute the market capitalization of the security to the value style.
As for security B, no style clearly dominates as the contribution to the distance of the two style scores is equal (50%), which is also less than 60% but more than 40%. As a result, 50% of the market capitalization of security B would be attributed to the value index and 50% to the growth index.

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