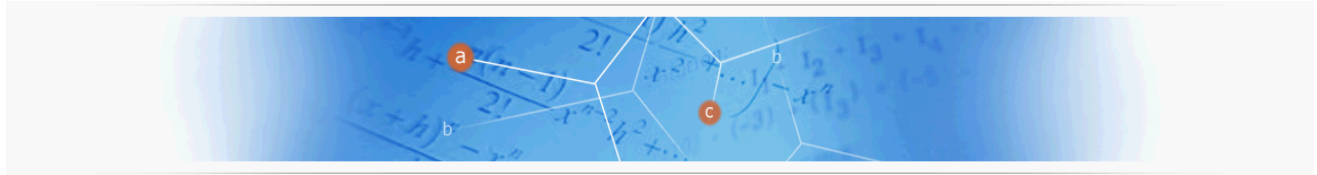


# (Beta) Holdings-Based Fund Classification Methodology



*Version: 2.0*  
*Updated: June 2010*



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## Introduction

Lipper's U.S. Diversified Equity (USDE) fund classification model, predicated on portfolio practice, has proven immeasurably helpful to the investment community since its introduction in September 1999. The model provides a meaningful framework for fund directors and management companies to use for performance evaluation. The USDE fund classifications provide investment practice distinctions and thus set reasonable expectations about funds for retail investors and financial advisors.

Because of the success of the USDE model and for the sake of consistency, the standards for worldwide holdings-based fund classifications are set as close to the USDE model as possible. We follow a two-step equity fund classification methodology, regardless of the investment region: first, we assign a market-capitalization classification to each fund; then, we assign a style classification.

Lipper offers mutual fund indices based on nearly all of the diversified equity fund classifications. For additional information on the Lipper Indices, contact Client Services toll free at (877) 955-4773, direct at (303) 534-3472, visit us on the web at [www.lipperweb.com](http://www.lipperweb.com), or contact us via email at [lipperclientservices@thomsonreuters.com](mailto:lipperclientservices@thomsonreuters.com).

## Changes in Version 2

We've simplified the classification process with the aim of providing a more thorough and intuitive model to explain portfolio strategies. The most notable changes are:

- ✓ Using up to six portfolios (the current portfolio plus the prior five semiannual and annual portfolios (page 9))
- ✓ Using six characteristics for the primary L-measure (page 10)
- ✓ Changing the border region style test to resemble the capitalization border region test (page 12)
- ✓ Changing the benchmarks for both the capitalization methodology and relative style for Global and International fund classifications to MSCI indexes (page 22)

## Data Underlying the Model

Classifying diversified equity funds with Lipper's model begins with portfolio holdings and associated fundamental financial characteristics. Specifically, classifications are assigned based on certain characteristics of the equity securities held by each fund. This section of the paper explains how Lipper obtains data, how the portfolio characteristics are derived, what types of securities are eligible for evaluation, and the time weightings used in all the classification models.

Fund classification models are built on data received directly from fund companies, their data providers, or independent third-party data providers.

For all funds, characteristics derived from portfolio holdings and the S&P® and MSCI indices are obtained using the Reuters Fundamentals research database. Additionally, Lipper uses the Reuters Fundamentals research database to obtain month-end market values of securities comprising the various S&P and MSCI indices to determine the monthly market-capitalization breakpoints.

Classifications are based on portfolio holdings that meet certain criteria. Only common stock traded on a U.S. or foreign exchange, including American depositary receipts (ADRs) and global depositary

receipts (GDRs) are considered. Lipper does not consider cash, convertible securities, rights, warrants, futures, options, or preferred stock in the classification process.

A weighting scheme is used in the equity funds classification process. Funds with three or more years of history have portfolio weightings as follows:

	<b>Latest</b> <span style="font-size: 2em;">→</span> <b>Earliest</b>				
	Current	Prior Semi/FYE	Prior Semi/FYE	Prior Semi/FYE	Prior Semi/FYE
Portfolio Name:	P0	P1	P2	P3	P4
Portfolio Weight:	40%	20%	15%	10%	8%

The current period portfolio, weighted 40%, is refreshed in the classification model each time Lipper receives updated portfolio data. A minimum of one month separates the current period portfolio (weighted 40%) from the P1 portfolio (weighted 20%) to avoid double-counting when the latest portfolio is also a semiannual or fiscal year-end portfolio. The P1 through P5 portfolios represent the fund's latest semiannual and fiscal year-end holdings. Lipper rolls the previous portfolios (P1 through P5) forward six months upon receipt of the newest semiannual or fiscal year-end portfolio data. For example, a fund with a fiscal year-end of December 31 has the following weights (when the latest portfolio is dated September 30, 2009):

	<b>Latest</b> <span style="font-size: 2em;">→</span> <b>Earliest</b>				
	Current	Prior Semi/FYE	Prior Semi/FYE	Prior Semi/FYE	Prior Semi/FYE
Portfolio Name:	P0	P1	P2	P3	P4
Date:	Sep-09	Jun-09	Dec-08	Jun-08	Dec-07
Portfolio Weight:	40%	20%	15%	10%	8%

Funds with less than six portfolios use the same date scheme but with different weightings (see below). A fund with only enough portfolio history for the latest three periods has a 53% weight on the current period portfolio, 27% on the P1 portfolio, and 20% on the P2 portfolio. A fund with only enough portfolio history to account for the current portfolio and two prior fiscal year-end portfolios will have a 63% weight on the current period portfolio, 24% on the prior P2 portfolio, and 13% on the P4 portfolio (the last example is that of a fund with very spotty—albeit unlikely—portfolio history). A fund with portfolio data from only the current period is given a classification with 100% weight on the current portfolio. In unique circumstances a fund company may petition Lipper to classify its fund based 100% on its current period portfolio. For example, a fund that undergoes a change of investment policy may request that Lipper eliminate the fund's history from the weighting scheme and base its classification on updated portfolio data that support the new investment policy.

	Current	Prior Semi/FYE	Prior Semi/FYE	Prior Semi/FYE	Prior Semi/FYE	Prior Semi/FYE
Examples: (1=Portfolio, 0=No Portfolio)	1	1	1	0	0	0
Weights:	0.4	0.2	0.15	0	0	0
Converted Weights:	53%	27%	20%	0%	0%	0%
Example:	1	0	1	0	1	0
Weights:	0.4	0	0.15	0	0.08	0
Converted Weights:	63%	0%	24%	0%	13%	0%
Example:	1	1	0	1	0	0
Weights:	0.4	0.2	0	0.1	0	0
Converted Weights:	57%	29%	0%	14%	0%	0%

## Lipper Classification Methodology

The Lipper classification methodology is a two-step process. The first step is to assign a market-capitalization classification to each fund. Based on that designation, the second step is to assign a style classification. Because of the small number of eligible funds and a lack of market-capitalization commitment by many of them, U.S. closed-end fund classifications are limited to core, growth, and value; similarly, international closed-end funds are not broken out into international classifications (most of them are country- or region-specific).

For all available portfolios style characteristics are calculated using the Reuters Fundamentals research database as of the actual portfolio date. The six characteristics used to classify diversified domestic and foreign equity funds are the price-to-earnings ratio, price-to-book ratio, price-to-sales ratio, return on equity, dividend yield, and three-year sales-per-share growth.

### Style Characteristics for All Diversified Equity Classification Models

- Price to Earnings
- Price to Book
- Price to Sales
- Return on Equity
- Dividend Yield
- 3 Year Sales Growth

#### **Step 1: Market-Capitalization Classification**

The first step in the classification process is to calculate the percentages of a fund's equity holdings that fall into each of Lipper's three defined market-capitalization ranges. These ranges can be thought of as market-capitalization slices, each holding a percentage of total net equity. The percentages of equity a fund has in each of the small-, mid-, and large-cap slices sum to 100%. A fund's weighted total in each slice is used to determine the final market-capitalization classification.

For the classification system to remain dynamic, market-sensitive breakpoints are calculated each month (see Appendix A: Market Capitalization Breakpoint Calculation).

To be classified as a large-cap fund, at least 75% of the fund's weighted equity assets must be concentrated above the large-cap threshold(s). To be classified as a mid-cap fund, at least 75% of the fund's weighted equity assets must be concentrated below the mid-cap ceiling, and to be classified as a small-cap fund, at least 75% of the fund's weighted equity assets must be concentrated below the small-cap ceiling. Unlike large-cap funds, mid-cap funds do not have a capitalization floor. A fund is classified as a mid-cap fund by summing the equity assets in the small- and mid-cap ranges. Combining the two capitalization ranges allows a mid-cap manager benchmarking his or her fund to a mid-cap index the latitude to potentially buy every stock in the index.

A fund with less than 75% of its weighted equity assets concentrated in any of the three market capitalization ranges is classified as a multi-cap fund. The multi-cap classification identifies funds that diversify their market capitalizations and that in many cases are unrestricted (by prospectus) as to the size of the companies in which they invest. A multi-cap fund has more than 25% (but less than 75%) of its assets invested in companies with market capitalizations above the mid-cap ceiling (please see Appendix B: Market-Capitalization Classification Example).

#### *Market-Capitalization Border Regions*

A border-region test is applied to funds falling just short of a market-capitalization classification on a weighted basis. All funds that have between 73.00% and 74.99% of their equity assets allocated in a specific market-capitalization range (or, for mid-cap, a combination of capitalization ranges) are

subject to a second test. The second test is the calculation of a simple average over the same available portfolios. For example, a fund with a weighted average total of 74% in large-cap and a simple average total of 76% in large-cap passes the border region test to be included in the large-cap classification. A small-cap fund with a weighted average total of 73.2% and a simple average total of 74.5% is not considered a small-cap fund in the Lipper structure, since neither average passes the 75% threshold. Small-cap funds that do not meet the 75% weighted average test or the simple average test are placed in the mid-cap classification. The border-region test is designed to create greater classification stability for funds whose most recent holdings' aggregate weighted market capitalizations have crossed slightly over a boundary.

**Step 2: Style Classification**

A composite portfolio characteristic measure, or L-measure, is used to classify funds into one of three style classifications. This composite measure is calculated using a six-factor model that compares funds to their relevant index.

The first step in determining a fund's style classification is to calculate an individual Z-score for each period, using the six primary characteristics (please see Appendix C: Characteristics Definitions).

For example, if an international large-cap fund's price-to-sales ratio is 10 and the weighted average price-to-sales ratio of large-cap stocks in its relevant index is 8 with a weighted standard deviation of 4, the Z-score would be 0.500 (please see Appendix D: Z-Score Calculation). Once a Z-score has been calculated for each of the six characteristics, those Z-scores are summed and divided by six to derive that period's L-measure.

Once an L-measure value has been calculated for each period, the final weighted L-measure Z-score is calculated by weighting each individual L-measure: 40% for the current period (P0), 20% for the P1 portfolio, 15% for the P2, 10% for the P4, 8% for the P5, and 7% for the P6 portfolio. The final weighted L-measure Z-score is placed on a distribution curve (see Figure 1) and used to place each fund in its appropriate style classification (please see Appendix E: Primary Style Classification Example). The following ranges on the distribution curve define the Lipper style classifications:

Z-Score (Style) Regions Among Fund Classification Models	
<u>US Diversified Equity</u>	<u>World Equity</u>
<b>Growth</b>	<b>Growth</b>
• Z-score > +0.20	• Z-score > +0.10
<b>Core</b>	<b>Core</b>
• Z-score ≤ 0.20 x ≥ -0.20	• Z-score ≤ 0.10 x ≥ -0.10
<b>Value</b>	<b>Value</b>
• Z-score < -0.20	• Z-score < -0.10

*Style Border Regions*

Lipper further tests portfolios that fall in the style classification border regions. A border region is defined as plus/minus a fraction of a standard deviation from the boundaries around the core style. For example, the defined border region between World Equity fund styles growth/core is  $0.10 \pm 0.05$ , or 0.05 to 0.15, or for USDE the value/core border region lies between  $-0.20 \pm 0.10$ , or -0.30 to -0.10.

The striped areas on the distribution curve in Figure 1 represent the defined border regions.

A fund maintains its assigned style classification unless the confirming statistic's final Z-score exceeds the border region in the opposite direction. The simple average of the L-Measures is used to make a final determination of a fund's style classification in the border region between core and value. For example, if a World Equity fund's final weighted L-measure Z-score is minus 0.095 (which is on the core side of the core-value border region among World Equity funds) and its unweighted L-measure Z-score is minus 0.138 (which does not exceed the core-value border region in the value direction), then the fund remains classified as a core fund. In summary, if a portfolio's final weighted composite L-measure Z-score is in the border region, the secondary statistic (the simple average composite L-measure Z-score) must exceed the border region in the opposite direction if a fund is to be reclassified (see Appendix F: Confirming Style Classification Example).

The detailed border-region test procedure is outlined in the table below:

Border Region Test

**Core/Growth Border**

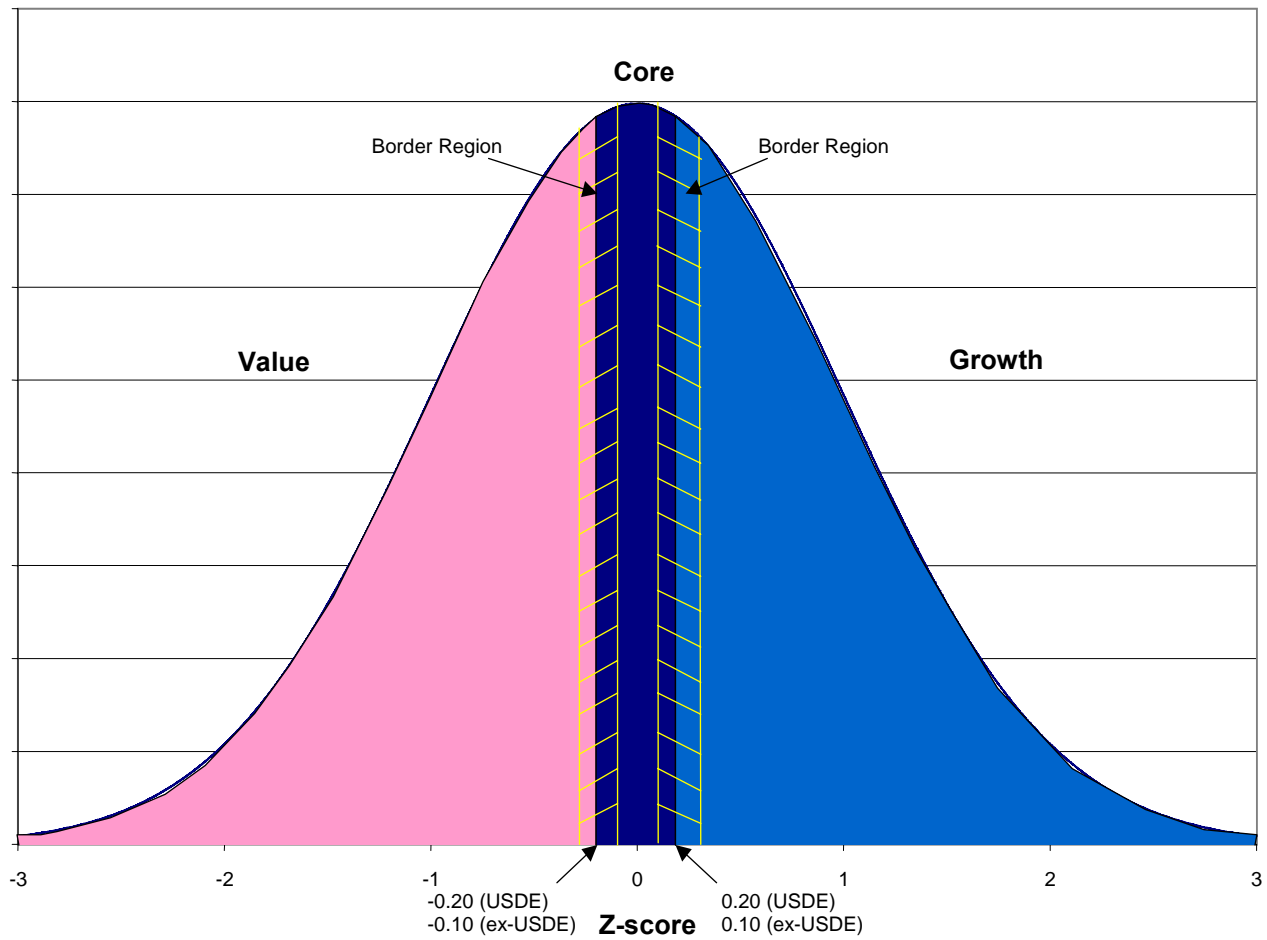
	Weighted Z-Score	Border Test Result
USDE Funds	Between (or equal to) 0.20 and 0.30	If unweighted Z-score is <0.10 then Core; if >0.10 then Growth
	Between (or equal to) 0.10 and 0.20	If unweighted Z-score is <0.30 then Core; if >0.30 then Growth
ex-USDE Funds	Between (or equal to) 0.10 and 0.15	If unweighted Z-score is <0.05 then Core; if >0.05 then Growth
	Between (or equal to) 0.05 and 0.10	If unweighted Z-score is <0.15 then Core; if >0.15 then Growth

**Core/Value Border**

	Weighted Z-Score	Border Test Result
USDE Funds	Between (or equal to) -0.20 and -0.10	If unweighted Z-score is <-0.30 then Value; if >-0.30 then Core
	Between (or equal to) -0.30 and -0.20	If unweighted Z-score is <-0.10 then Value; if >-0.10 then Core
ex-USDE Funds	Between (or equal to) -0.10 and -0.05	If unweighted Z-score is <-0.15 then Value; if >-0.15 then Core
	Between (or equal to) -0.15 and -0.10	If unweighted Z-score is <-0.05 then Value; if >-0.05 then Core

Figure 1 depicts the distribution curve with the value, core, and growth regions designated. The striped area on either side of core designates the core/value and core/growth border regions. The x-axis represents a simulated range of fund Z-scores, and the y-axis represents a simulated number of funds in each of the style regions.

**Figure 1 Z-Score Distribution Breakpoints and Border Regions**



## Specialized Equity Funds (U.S. Funds Only)

Lipper defines a specialized equity fund as an open-end fund or a variable insurance product that does not meet the criteria to be classified in one of the 12 standard USDE fund classifications.

These funds generally:

- Establish a distinct investment strategy in their prospectus language.
- Do not conform to any particular capitalization or style mandate.
- Have a very low coefficient of determination (r-squared) compared to the 12 standard USDE fund classifications.

## U.S. Diversified Equity Fund Classification Matrices

### Capitalization

Open-End and Variable Annuity Classifications				Closed Ends
Large-Cap	Large-Cap Value (LCVE)	Large-Cap Core (LCCE)	Large-Cap Growth (LCGE)	Equity Income (EIEI)
Multi-Cap	Multi-Cap Value (MLVE)	Multi-Cap Core (MLCE)	Multi-Cap Growth (MLGE)	S&P 500 Funds (SPSP)
Mid-Cap	Mid-Cap Value (MCVE)	Mid-Cap Core (MCCE)	Mid-Cap Growth (MCGE)	Specialty
Small-Cap	Small-Cap Value (SCVE)	Small-Cap Core (SCCE)	Small-Cap Growth (SCGE)	Diversified Equity (SESE)
	Value	Core	Growth	Growth
				Core
				Value

### Valuation

**Other Diversified Classifications without Cap/Style Determination: Dedicated Short Bias, Extended Large-Cap Core, Market Neutral, Long-Short Equity, and Diversified Leverage**

## International/Global Fund Classification Matrices

World equity funds that concentrate their investments in a specific country or region are reassigned to a more appropriate classification. Tables 1 and 2 depict all Lipper international and global fund classifications:

**Table 1: International Fund Classification Matrix**

Open-End International Funds Classifications

Capitalization	Value	Core	Growth
Large-Cap	International Large-Cap Value (ILCV)	International Large-Cap Core (ILCC)	International Large-Cap Growth (ILCG)
Multi-Cap	International Multi-Cap Value (IMLV)	International Multi-Cap Core (IMLC)	International Multi-Cap Growth (IMLG)
Small/Mid-Cap	International Small/Mid-Cap Value (ISMV)	International Small/Mid-Cap Core (ISMC)	International Small/Mid-Cap Growth (ISMG)

**Valuation**

Variable Insurance Products  
International Funds Classifications

**Capitalization  
Not Applicable**

International Value (IFVE)	International Core (IFCE)	International Growth (IFGE)
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**Value                      Core                      Growth**

**Valuation**

**Table 2: Global Fund Classification Matrix**

Open-End Global Funds Classifications

**Capitalization**

**Large-Cap**

**Multi-Cap**

**Small/Mid-Cap**

Global Large-Cap Value (GLCV)	Global Large-Cap Core (GLCC)	Global Large-Cap Growth (GLCG)
Global Multi-Cap Value (GMLV)	Global Multi-Cap Core (GMLC)	Global Multi-Cap Growth (GMLG)
Global Small/Mid-Cap Value (GSMV)	Global Small/Mid-Cap Core (GSMC)	Global Small/Mid-Cap Growth (GSMG)

**Value                      Core                      Growth**

**Valuation**

Variable Insurance Products  
Global Funds Classifications

**Capitalization  
Not Applicable**

Global Value (GLVE)	Global Core (GLCE)	Global Growth (GLGE)
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**Value                      Core                      Growth**

**Valuation**

## Collection and Processing of Portfolio Data

Funds are classified in Lipper’s holdings-based classifications according to portfolio data obtained directly from fund companies or from a third-party portfolio data provider. The vast majority of fund companies provide portfolio data to Lipper as frequently as monthly. Lipper’s third-party data provider acquires portfolio data on a semiannual basis from funds’ publicly filed documents.

### Portfolio Data Provided by Fund Companies or Their Data Providers

To be included in Lipper’s monthly processing, month-end holdings and asset allocation data must be error-free and posted on Lipper’s FTP site in the specified format. Portfolio data received by the twenty-fifth day of the month are processed on the last business day of that month. For additional information on providing portfolio data to Lipper, contact Client Services toll free at (877) 955-4773, direct at (303) 534-3472, or via email at [lipperclientservices@thomsonreuters.com](mailto:lipperclientservices@thomsonreuters.com).

### Portfolio Data Obtained From Lipper’s Third-Party Data Provider

Lipper obtains annual and semiannual portfolio data from its third-party portfolio data provider for any funds unable to provide portfolio data to Lipper. Since these data are obtained from publicly filed

documents, the process typically takes four months from a fund's annual or semiannual reporting date for characteristics to be calculated on third party-collected portfolio data. For example, characteristics based on December 31, 2003 portfolio holdings would have been processed in Lipper's April 30, 2004 model.

## The Semiannual Classification Review

Although Lipper initiates a review of a fund's current classification only after its latest annual or semiannual portfolio has been processed, fund companies choosing to provide portfolio data to Lipper on a monthly or quarterly basis have a distinct advantage in that they are aware of their portfolio's style and/or capitalization changes well ahead of the review period.

## Classifying New Diversified Equity Funds

Lipper must receive and process an equity fund's first portfolio before assigning a classification to the fund. Lipper accepts data other than month-end portfolio data only for a fund's first portfolio. A fund's first portfolio is valued as of its portfolio date, including non-month-end portfolio dates.

For fund companies choosing not to provide Lipper an equity fund's first portfolio, Lipper accepts portfolio characteristics in lieu of the requested portfolio data. In turn, Lipper classifies the new equity fund based on portfolio characteristics provided by the fund company or its data provider. If a fund company is unable to provide Lipper a fund's first portfolio the fund is assigned a classification once Lipper receives annual or semiannual portfolio data from its third-party provider (**Note:** funds lacking a classification are not reported in Lipper's database or to our media partners).

For additional information on Lipper's policy for classifying new funds, please contact Lipper's Client Services department toll free at (877) 955-4773, direct at (303) 534-3472, or via email at [lipperclientservices@thomsonreuters.com](mailto:lipperclientservices@thomsonreuters.com).

## Reclassifying Existing Equity Funds

All fund reclassifications take place from the third week in January through October each year. Because of Lipper's year-end fund classification freeze, all warranted changes identified in November and December and early January are held over until the third week of January.

Equity funds are evaluated at least semiannually. Lipper reviews a fund's classification once the fund's annual or semiannual report is received and processed. If, based on the annual or semiannual portfolio data, Lipper believes a fund should be reclassified, notice is sent to the advisor (see Appendix H: Sample Reclassification Notice From Lipper). The advisor has two options:

**Agree.** Lipper reclassifies the fund soon after receiving confirmation from the advisor.

**Disagree.** In this instance the advisor or the data provider must submit updated portfolio data to Lipper for review. If the updated portfolio data confirm the current classification, the fund is not reclassified. If the updated portfolio data confirm the pending classification, the fund is reclassified. If Lipper does not receive updated portfolio holdings within the allotted time, the fund is reclassified.

In the event an advisor wishes to petition for a reclassification, the advisor or the advisor's data provider must support the petition by submitting portfolio data that may or may not coincide with the fund's annual or semiannual reporting date. For example, although ABC Fund has a December 31 fiscal year-end, its fund company may send February 28 portfolio data in support of the fund's reclassification. If the updated portfolio data warrant a classification change, Lipper reclassifies the fund accordingly.

Lipper also considers reclassifying funds that have undergone a fundamental change of investment policy. In order for a fund to be reclassified to reflect a fundamental change, Lipper must receive two items: (1) updated portfolio data supporting the change, and (2) a letter signed by an officer of the fund notifying Lipper of the change. (Refer to Appendix I: Sample Reclassification Request Letter From a Fund Company.)

## Summary

The first step of the fund classification model derives an aggregate market capitalization for each open-end fund and variable insurance product. The second step measures each fund against an appropriate equity index to determine its style classification. The final result of the two-step process places all equity funds and variable insurance products into one of 18 world equity, 15 open-end USDE, or 3 closed-end USDE fund classifications.

Through this two-step process Lipper's equity fund classification model meets two important needs. For institutional performance evaluators it serves as a valuable frame of reference in the analysis of portfolio manager performance. In addition, the fund classifications provide investment practice distinctions and thus set reasonable expectations about funds for retail investors and financial advisors.

## Appendix A: Market-Capitalization Breakpoint Calculation

### **U.S. Diversified Equity Fund Classifications**

Lipper will apply the familiar “70% rule” to the Russell 3000 Index to determine the large-cap floor. All the stocks of the Russell 3000 will be ranked by descending order of market cap, the total market capitalization of the index will be computed by summing each constituent stock’s capitalization, and then the large-cap/mid-cap breakpoint will be calculated by adding each stock’s capitalization weight until the 70th percentile of the total capitalization is reached.

The small-cap ceiling will be determined in the same process as described above using the 85<sup>th</sup> percentile of the total capitalization of the Russell 3000 Index to determine the mid-cap/small-cap breakpoint.

### **U.S. Registered Global/International Equity Fund Classifications**

The market capitalization breakpoints are calculated monthly using the MSCI EAFE index (for international classifications) and the MSCI World Index (for global classifications).

Lipper will apply a 75% rule to each index to determine the large-cap floor. All the stocks of each index will be ranked by descending order of market cap, the total market capitalization of the index will be computed by summing each constituent stock’s capitalization, and then the large-cap/mid-cap breakpoint will be calculated by adding each stock’s capitalization weight until the 75th percentile of the total capitalization is reached.

The small-cap ceiling will be determined in the same process as described above using the 95<sup>th</sup> percentile of the total capitalization of each index to determine the mid-cap/small-cap breakpoint.

## Appendix B: Market-Capitalization Classification Example

Securities are grouped by market capitalization using Lipper's market-capitalization breakpoints. For example, assume at September 30, 20XX, the mid-cap ceiling (large-cap floor) is \$8.0 billion and the small-cap ceiling is \$2.0 billion.

The fund's percentages of total net assets allocated to each market-capitalization range (\$8 billion+ as large-cap, \$2 billion to <\$8 billion as mid-cap, and <\$2 billion as small-cap) are calculated.

The portfolio weighting for each capitalization range for each portfolio period is calculated.

The capitalization border region is the area between 73.00% and 74.99%. After appropriately weighting each of the portfolios (see *Data Underlying the Model*, page 7), let's say the fund lands in the mid- to large-cap border region (74.44% in the large-cap range).

The capitalization will be confirmed by using the simple average border-region test. In this example, a simple average of each capitalization is calculated and if that simple average is greater than or equal to 75% in large-cap, that will be its capitalization. If the simple average is less than 75% the fund will be a multi-cap.

## Appendix C: Characteristics Definitions

### **P/E - Trailing 12-Month**

Price divided by EPS, where EPS is the sum of the earnings available for common stockholders over the most recent Trailing 12-Months, divided by a weighted average of common shares outstanding over the most recent four quarters.

### **Price-to-Book**

Price divided by most recently reported Book Value per Share.

### **Price-to-Sales Ratio**

The current price of a stock divided by the most recent four-quarter's (year over year) sales per share.

### **Dividend - Yield**

The indicated Annual Dividend divided by current price. For classification modeling purposes the reciprocal of this value is used to ensure that companies with high dividend yields align with the "value" side of the growth/value spectrum. Price divided by dividend is not used because many firms do not pay dividends and dividing a value (price) by zero is not useful.

### **Return on Equity- Arithmetic**

Net income divided by common stockholders' equity.

Calculated at the security level as:

$$ROE = 100 \cdot \frac{EPS}{BPS}$$

where EPS is earnings per share (Trailing 12-Month) and BPS is Book Value per Share.

### **Net Sales or Revenue - 3 Year Annual Growth**

Annualized percentage change in the most recently reported annual Net Sales/Revenue and reported annual Net Sales/Revenue from three years ago.

Calculated at the security level as:

$$\left[ \left( \frac{S_t / SHOUT_t}{S_{t-3} / SHOUT_{t-3}} \right)^{\frac{1}{3}} - 1 \right] \times 100$$

where  $S_t$  is the most recently reported annual net sales or revenue,  $S_{t-3}$  is annual net sales or revenue per share from three years ago, and  $SHOUT_t$  and  $SHOUT_{t-3}$  are the shares outstanding for the security at time  $t$  and  $t-3$ .



## Appendix D: Z-Score Calculation

$$Z = \frac{(X - \mu)}{\sigma}$$

**Z** – Individual characteristic standard deviation distance from the population mean

**X** – Characteristic value **weighted** average

**$\mu$**  – Characteristic index **weighted** average

**$\sigma$**  – Characteristic index **weighted** standard deviation

**Note:** All Z-scores are calculated within a specific investment universe group. For instance, all global funds are measured against a capitalization subset of the MSCI World Index, while all International funds are similarly measured against their appropriate capitalization subset of the MSCI EAFE Index. USDE funds are measured against their capitalization-appropriate index from S&P (large-caps: S&P 500, multi-caps: S&P1500, mid-caps: S&P 400, and small-caps: S&P 600).

## Appendix E: Equity Fund Classification Definitions

### **U.S. Diversified Equity Fund Classifications – Open End and Variable Insurance Product Funds**

#### Large-Cap Funds

##### **Large-Cap Growth Funds**

Funds that, by portfolio practice, invest at least 75% of their equity assets in companies with market capitalizations (on a three-year weighted basis) above Lipper's USDE large-cap floor. Large-cap growth funds typically have above-average characteristics compared to the S&P 500 Index.

##### **Large-Cap Core Funds**

Funds that, by portfolio practice, invest at least 75% of their equity assets in companies with market capitalizations (on a three-year weighted basis) above Lipper's USDE large-cap floor. Large-cap core funds have more latitude in the companies in which they invest. These funds typically have an average characteristics compared to the S&P 500 Index.

##### **Large-Cap Value Funds**

Funds that, by portfolio practice, invest at least 75% of their equity assets in companies with market capitalizations (on a three-year weighted basis) above Lipper's USDE large-cap floor. Large-cap value funds typically have below average characteristics compared to the S&P 500 Index.

#### Multi-Cap Funds

##### **Multi-Cap Growth Funds**

Funds that, by portfolio practice, invest in a variety of market-capitalization ranges without concentrating 75% of their equity assets in any one market-capitalization range over an extended period of time. Multi-cap growth funds typically have above-average characteristics compared to the S&P SuperComposite 1500 Index.

##### **Multi-Cap Core Funds**

Funds that, by portfolio practice, invest in a variety of market-capitalization ranges without concentrating 75% of their equity assets in any one market-capitalization range over an extended period of time. Multi-cap core funds typically have average characteristics compared to the S&P SuperComposite 1500 Index.

##### **Multi-Cap Value Funds**

Funds that, by portfolio practice, invest in a variety of market-capitalization ranges without concentrating 75% of their equity assets in any one market-capitalization range over an extended period of time. Multi-cap value funds typically have below-average characteristics compared to the S&P SuperComposite 1500 Index.

## Mid-Cap Funds

### **Mid-Cap Growth Funds**

Funds that, by portfolio practice, invest at least 75% of their equity assets in companies with market capitalizations (on a three-year weighted basis) below Lipper's USDE large-cap floor. Mid-cap growth funds typically have above-average characteristics compared to the S&P MidCap 400 Index.

### **Mid-Cap Core Funds**

Funds that, by portfolio practice, invest at least 75% of their equity assets in companies with market capitalizations (on a three-year weighted basis) below Lipper's USDE large-cap floor. Mid-cap core funds have more latitude in the companies in which they invest. These funds typically have average characteristics compared to the S&P MidCap 400 Index.

### **Mid-Cap Value Funds**

Funds that, by portfolio practice, invest at least 75% of their equity assets in companies with market capitalizations (on a three-year weighted basis) below Lipper's USDE large-cap floor. Mid-cap value funds typically have below-average characteristics compared to the S&P MidCap 400 Index.

## Small-Cap Funds

### **Small-Cap Growth Funds**

Funds that, by portfolio practice, invest at least 75% of their equity assets in companies with market capitalizations (on a three-year weighted basis) below Lipper's USDE small-cap ceiling. Small-cap growth funds typically have above-average characteristics compared to the S&P SmallCap 600 Index.

### **Small-Cap Core Funds**

Funds that, by portfolio practice, invest at least 75% of their equity assets in companies with market capitalizations (on a three-year weighted basis) below Lipper's USDE small-cap ceiling. Small-cap core funds have more latitude in the companies in which they invest. These funds typically have average characteristics compared to the S&P SmallCap 600 Index.

### **Small-Cap Value Funds**

Funds that, by portfolio practice, invest at least 75% of their equity assets in companies with market capitalizations (on a three-year weighted basis) below Lipper's USDE small-cap ceiling. Small-cap value funds typically have below-average characteristics compared to the S&P SmallCap 600 Index.

## Specialized Equity Funds

### **S&P 500 Index Funds**

Funds that are passively managed and commit by prospectus language to replicate the performance of the S&P 500 Index (including reinvested dividends). In addition, S&P 500 Index funds have limited expenses (advisor fee no higher than 0.50%).

### **Equity Income Funds**

Funds that, by prospectus language and portfolio practice, seek relatively high current income and growth of income by investing at least 65% of their portfolio in dividend-paying equity securities.

### **Specialty Diversified Equity Funds**

Funds that, by portfolio practice, invest in all market capitalization ranges without restriction. These funds typically have distinctly different strategies and performance, resulting in a low coefficient of determination (r-squared) compared to other U.S. diversified equity funds.

## **U.S. Diversified Equity Fund Classifications- Closed-End Funds**

### **Growth Funds**

Funds that, by portfolio practice, typically have above-average characteristics compared to the S&P SuperComposite 1500 Index.

### **Core Funds**

Funds that, by portfolio practice, typically have average characteristics compared to the S&P SuperComposite 1500 Index.

### **Value Funds**

Funds that, by portfolio practice, typically have below-average characteristics compared to the S&P SuperComposite 1500 Index.

# U.S. Registered Global Equity Fund Classifications – Open End Funds

## Large-Cap Funds

### **Global Large-Cap Growth Funds**

Funds that, by portfolio practice, invest at least 75% of their equity assets in companies both inside and outside of the U.S. with market capitalizations (on a three-year weighted basis) above Lipper's global large-cap floor. Global large-cap growth funds typically have above-average characteristics compared to their large-cap-specific subset of the MSCI World Index.

### **Global Large-Cap Core Funds**

Funds that, by portfolio practice, invest at least 75% of their equity assets in companies both inside and outside of the U.S. with market capitalizations (on a three-year weighted basis) above Lipper's global large-cap floor. Global large-cap core funds typically have average characteristics compared to their large-cap-specific subset of the MSCI World Index.

### **Global Large-Cap Value Funds**

Funds that, by portfolio practice, invest at least 75% of their equity assets in companies both inside and outside of the U.S. with market capitalizations (on a three-year weighted basis) above Lipper's global large-cap floor. Global large-cap value funds typically have below-average characteristics compared to their large-cap-specific subset of the MSCI World Index.

## Multi-Cap Funds

### **Global Multi-Cap Growth Funds**

Funds that, by portfolio practice, invest in a variety of market capitalization ranges without concentrating 75% of their equity assets in any one market capitalization range over an extended period of time. Global multi-cap growth funds typically have above-average characteristics compared to the MSCI World Index.

### **Global Multi-Cap Core Funds**

Funds that, by portfolio practice, invest in a variety of market capitalization ranges without concentrating 75% of their equity assets in any one market capitalization range over an extended period of time. Global multi-cap core funds typically have average characteristics compared to the MSCI World Index.

### **Global Multi-Cap Value Funds**

Funds that, by portfolio practice, invest in a variety of market capitalization ranges without concentrating 75% of their equity assets in any one market capitalization range over an extended period of time. Global multi-cap value funds typically have below-average characteristics compared to the MSCI World Index.

## Small/Mid-Cap Funds

### **Global Small-/Mid-Cap Funds**

Funds that, by portfolio practice, invest at least 75% of their equity assets in companies both inside and outside of the U.S. with market capitalizations (on a three-year weighted basis) below Lipper's global large-cap floor.

# U.S. Registered International Equity Fund Classifications – Open End Funds

## Large-Cap Funds

### **International Large-Cap Growth Funds**

Funds that, by portfolio practice, invest at least 75% of their equity assets in companies strictly outside of the U.S. with market capitalizations (on a three-year weighted basis) above Lipper's international large-cap floor. International large-cap growth funds typically have above-average characteristics compared to their large-cap-specific subset of the MSCI EAFE Index.

### **International Large-Cap Core Funds**

Funds that, by portfolio practice, invest at least 75% of their equity assets in companies strictly outside of the U.S. with market capitalizations (on a three-year weighted basis) above Lipper's international large-cap floor. International large-cap core funds typically have average characteristics compared to their large-cap-specific subset of the MSCI EAFE Index.

### **International Large-Cap Value Funds**

Funds that, by portfolio practice, invest at least 75% of their equity assets in companies strictly outside of the U.S. with market capitalizations (on a three-year weighted basis) above Lipper's international large-cap floor. International large-cap value funds typically have below-average characteristics compared to their large-cap-specific subset of the MSCI EAFE Index.

## Multi-Cap Funds

### **International Multi-Cap Growth Funds**

Funds that, by portfolio practice, invest in a variety of market-capitalization ranges without concentrating 75% of their equity assets in any one market-capitalization range over an extended period of time. International multi-cap growth funds typically have above-average characteristics compared to the MSCI EAFE Index.

### **International Multi-Cap Core Funds**

Funds that, by portfolio practice, invest in a variety of market-capitalization ranges without concentrating 75% of their equity assets in any one market-capitalization range over an extended period of time. International multi-cap core funds typically have average characteristics compared to the MSCI EAFE Index.

### **International Multi-Cap Value Funds**

Funds that, by portfolio practice, invest in a variety of market-capitalization ranges without concentrating 75% of their equity assets in any one market-capitalization range over an extended period of time. International multi-cap value funds typically have below-average characteristics compared to the MSCI EAFE Index.

## Small/Mid-Cap Funds

### **International Small-/Mid-Cap Growth Funds**

Funds that, by portfolio practice, invest at least 75% of their equity assets in companies strictly outside of the U.S. with market capitalizations (on a three-year weighted basis) below Lipper's international large-cap floor. International small-/mid-cap growth funds typically have above-average characteristics compared to their mid- and small-cap-specific subset the MSCI EAFE Index.

### **International Small-/Mid-Cap Core Funds**

Funds that, by portfolio practice, invest at least 75% of their equity assets in companies strictly outside of the U.S. with market capitalizations (on a three-year weighted basis) below Lipper's international large-cap floor. International small-/mid-cap core funds typically have average characteristics compared to their mid- and small-cap-specific subset the MSCI EAFE Index.

### **International Small-/Mid-Cap Value Funds**

Funds that, by portfolio practice, invest at least 75% of their equity assets in companies strictly outside of the U.S. with market capitalizations (on a three-year weighted basis) below Lipper's international large-cap floor. International small-/mid-cap value funds typically have below-average characteristics compared to their mid- and small-cap-specific subset the MSCI EAFE Index.

## **U.S. Registered Global Equity Fund Classifications - Variable Insurance Product Funds**

### **Global Growth Funds**

Funds that, by portfolio practice, invest at least 75% of their equity assets in companies both inside and outside of the U.S. Global growth funds typically have above-average characteristics compared to the MSCI World Index.

### **Global Core Funds**

Funds that, by portfolio practice, invest at least 75% of their equity assets in companies both inside and outside of the U.S. Global core funds typically have average characteristics compared to the MSCI World Index.

### **Global Value Funds**

Funds that, by portfolio practice, invest at least 75% of their equity assets in companies both inside and outside of the U.S. Global value funds typically have below-average characteristics compared to the MSCI World Index.

## **U.S. Registered International Equity Fund Classifications - Variable Insurance Product Funds**

### **International Growth Funds**

Funds that, by portfolio practice, invest at least 75% of their equity assets in companies strictly outside of the U.S. International growth funds typically have above-average characteristics compared to the MSCI EAFE Index.

### **International Core Funds**

Funds that, by portfolio practice, invest at least 75% of their equity assets in companies strictly outside of the U.S. International core funds typically have average characteristics compared to the MSCI EAFE Index.

### **International Value Funds**

Funds that, by portfolio practice, invest at least 75% of their equity assets in companies strictly outside of the U.S. International value funds typically have below-average characteristics compared to the MSCI EAFE Index.

## Appendix F: Sample Reclassification Request Letter from a Fund Company

May 31, 200X

Lipper Portfolio Group  
Lipper  
707 17<sup>th</sup> Street, 22<sup>nd</sup> Floor  
Denver, CO 80202

Dear Portfolio Group:

It is my understanding that the ABC Fund is pending reclassification from Lipper's global small-cap core classification to its global mid-cap core classification.

Since we currently market another global mid-cap core fund, we are committed to keeping the ABC Fund classified as a global small-cap core fund. As such, we intend to invest at least 75% of the fund's assets in global small-cap stocks. We have submitted a revised prospectus to the SEC, defining global small-cap stocks as stocks having market capitalizations less than the stated monthly small-cap breakpoint as determined by Lipper.

Per your request, I uploaded a file containing our current portfolio data to Lipper's FTP site. I have also listed the fund's most recent market-capitalization breakdown as follows:

### **Current Market-Capitalization Percentage of Equity Assets**

Large-cap	3.75%
Mid-cap	15.50%
Small-cap	80.75%

If you require additional statistics or if you have any questions, please feel free to call me directly at (xxx) xxx-xxxx.

Sincerely,

Jane Smith  
(Officer or Director) of the ABC Fund

## Appendix G: Ex-USA Classifications

Coming soon