REFINITIV™
LIPPER® FACT SHEETS

REFINITIV™ LIPPER® ACTIVE INDICES

Calculation Methodology

VERSION 2.3

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THE BEGINNING™

Simple Definition

Refinitiv™ Lipper® Active Indices are the first active classification benchmarks available in the marketplace. They represent the various Lipper classification styles – such as large-cap growth, small-cap value, or emerging markets – as well as selected country-specific trade group schemas (IMA). The Active Indices help fund companies fill the analytical void that has existed in explaining individual fund performance within peer groups versus a given investment objective or classification.[1] This is done by aggregating peer group level holdings into a portfolio that allows investment professionals to understand the current and historical sector, industry, country and security positions taken by their actively managed peers.

Advanced Definition

Constructing the Active Indices is a process that takes place each month, matching the frequency of portfolio collection at Refinitiv Lipper. The nature of Lipper's comprehensive portfolio collection process makes it possible to construct Active Indices with a 50-day lag from the snapshot month-end date. However, Lipper creates the UK Active Indices with a 15-day lag from the snapshot month-end date. Once the batch data is completely clean and stored, two days are spent creating and testing the Active Index component mix to ensure it represents the corresponding peer group.

Active Indices are created at the peer group level. Figure 1 lists the Active Index modules and the available Active Indices within each module.

Figure 1: Active Index modules and indices

US Domiciled Fund Active Index Modules		
USDE	**Sector**	**International Classification**
Large-Cap Core (LCCE)	Real Estate (RE)	Global Large-Cap Core (GLCC)
Large-Cap Growth (LCGE)	Natural Resources (NR)	Global Large-Cap Growth (GLCG)
Large-Cap Value (LCVE)	Health/Biotech (H)	Global Large-Cap Value (GLCV)
Mid-Cap Core (MCCE)	Utility (UT)	Global Multi-Cap Core (GMLC)
Mid-Cap Growth (MCGE)	Financial Services (FS)	Global Multi-Cap Growth (GMLG)
Mid-Cap Value (MCVE)	Science and Tech (TK)	Global Multi-Cap Value (GMLV)
Small-Cap Core (SCCE)	Precious Metal Equity Funds (AU)	Global Small/Mid-Cap (GSME)
Small-Cap Growth (SCGE)	Consumer Services Funds (CS)	International Large-Cap Core (ILCC)
Small-Cap Value (SCVE)	Industrial Funds (ID)	International Large-Cap Growth (ILCG)
Multi-Cap Core (MLCE)		International Large-Cap Value (ILCV)
Multi-Cap Growth (MLGE)	**International Investment Objective**	International Multi-Cap Core (IMLC)
Multi-Cap Value (MLVE)	Global (GL)	International Multi-Cap Growth (IMLG)
Equity Income (EIEI)	International (IF)	International Multi-Cap Value (IMLV)
	International Small-Cap (IS)	International Small/Mid-Cap Core (ISMC)
	European Region (EU)	International Small/Mid-Cap Growth (ISMG)
	Emerging Markets (EM)	International Small/Mid-Cap Value (ISMV)
	Pacific Region (PC)	
	China Region (CH)	**International Sector**
	Pacific ex. Japan (XJ)	Global Real Estate (GRE)
		Global Natural Resources (GNR)
		International Real Estate (IRE)

[1] Investment objectives are based on prospectus language and classifications are based on full fund holdings.

Each classification's Active Index is constructed using the portfolios collected at the latest month-end date. As not all fund companies report portfolio holdings to Lipper on a monthly basis, the Active Indices are created solely from those that do. For example, if a fund reports on a monthly basis, their holdings are included in all monthly indices; and if a fund reports on a quarterly basis, their holdings are included in four monthly indices. Coverage for any given peer group (i.e., the number of portfolios used to create an Active Index) therefore fluctuates from month to month.

Lipper's objective is to create active benchmarks that closely mimic the movements in performance of their respective peer groups. Since portfolio coverage varies from month to month, the Active Index is tested on how well its performance matches that of the peer group's average total return gross of expenses. Gross peer group return is calculated using Lipper's standard gross return calculation, stored in the global calculation database. The Active Index should maintain an extremely tight tracking error with its peer group's performance over corresponding time periods. The annualized tracking error threshold for US diversified equity funds is 1%, and for all other peer groups it is 1.5%.[i]

Equally important in constructing an Active Index is the fact that portfolio data is secure and impossible to trace back to particular funds. In addition, fund size does not matter. Active Index component weights are aggregated based on each security's percentage of total assets in the portfolio. Using the security percentage of total assets to determine component weights is a unique method that allows us to create fund benchmarks where the funds are equally weighted and the component securities are market weighted. This helps to preserve continuity across portfolios with various amounts of assets under management and at the same time provides a representative, market-weighted security benchmark. This process should be communicated to clients in an effort to reduce embargo periods.

All securities, including the cash portion of the Active Index, represent a simple average of the percentage of total net assets held in each security across the portfolios used to build the index. Market values are determined for each security based on the product of aggregated weight (percentage of total net assets) multiplied by the constant index market value of $10 billion. Security market values are then divided by the corresponding month-end prices to get share values.

Inclusion Criteria

Fund classification methodologies for Active Indices

US Diversified Equity Classifications, US International Equity Classifications, US Sector Classifications.

Refinitiv Lipper Global Equity Classifications, IMA and ABI Equity and Mixed Asset Classifications.

Portfolio inclusion criteria for the current month

30 days' delivery time plus 10 days to pass internal quality assurance – where a universe delivers more timely data, the system will run on exceptions.[ii] Portfolio holdings may only be included after disclosure embargoes have been applied.

Historical portfolios: all portfolios in the system that meet the Active Indices maintenance requirements (see below) are included.

Fund type inclusion criteria

Funds eligible for inclusion in Active Indices include open-end funds in the mutual fund database, and UK unit trusts.

Fund type exclusion criteria

The following funds are not eligible for inclusion in Active Indices: index funds (with the index tracker attribute), exchange-traded funds, and funds of funds (with the FoF external or internal attribute).[iii]

Eligible securities

The following security types are eligible for inclusion in an Active Index portfolio: common stocks, preferred stocks, depositary receipts, cash (including cash equivalents) and ETFs with no look-through. All securities must have a minimum market capitalization of $100 million USD.[iv]

Creation and Maintenance Requirements for Active Indices

In order to maintain statistically representative classification indices, we apply the following rules to the creation and maintenance of Active Indices:[v]

USDE	Launch	Maintenance
Sector/classification portfolio count	Minimum five unique	Minimum three unique
Portfolio available for AI counts (holdings in production ready to go)	Minimum five unique	Minimum three unique
AND		
Portfolio coverage	Average number of portfolios >= 30% over the last 12 months and no less than 20% in the current month	Average over past 12 months of 25% and > 20% in at least one of the last three consecutive months
AND		
TNA coverage	Average TNA coverage >= 15% over the last 12 months and no less than 10% in the current month	Average over past 12 months of 12.5% and > 10% in at least one of the last three consecutive months

Index Creation Process

1. Calculate average security weights including cash

1.1 Create average percentage of TNA values

First, Refinitiv Lipper groups all funds by peer group and portfolio date. Only one unique instance of each security (including cash) will appear as a component in the final list (i.e., the Active Index portfolio). Because many securities have multiple share classes and/or trade on multiple exchanges, each with a unique identifier, it is necessary to conduct an aggregation process (see 1.2).

1.2 Aggregation

Lipper aggregates securities, including ADRs (adjusted by the ADR-to-share ratio) and foreign listings, by parent company (the primary RIC maintained by Refinitiv[vi] is key). Cash equivalents must be identified and included in the cash weighting for each portfolio prior to calculating averages.[vii]

1.3 Calculate averages

Lipper generates an average of the percentage of TNA values for each security, including cash, across the portfolios of the particular peer group by using the following equation: a/n where:

a = the sum of all the percentages of TNA values for every instance of a particular security or cash

n = all portfolios in a given peer group for a given month used to create the Active Index

For example, within the large-cap value Active Index for 31.12.2005, after the prior two steps, we know that MSFT (Microsoft) has a combined weight of 2.5% and that 41 portfolios were used to create the Active Index. So we divide .025/41 = .00061 to derive the average weight.

The value .00061 is the initial "weight" assigned to MSFT for the large-cap value Active Index for 30.12.2005. Later on, this initial weight will be used to calculate a market value,[2] a new weight, and finally a simulated share value for that component in the Active Index.

[2] Lipper defines market capitalization as an individual company's outstanding shares multiplied by its price. Market value refers to the monetary value of the security held within a portfolio.

1.4 Exclude securities with an aggregate weight of zero

1.5 Create cash row and column data – prepare to add cash as rows to table
Because cash is a component security in each index, the cash data is coupled with a peer group code, identifier and price. Cash should be referenced in the currency assigned to the index. The currency assigned to the index is the primary currency for the sector itself.[viii]

For example, all US Active Indices will use the following reference for cash:

ID = CASH_USD

Price = $1

2. Trim the index constituents list

First, Refinitiv Lipper scales the weights, including cash. We do this by calculating the sum of the market values. We divide each individual security's market value by the sum of the index market value to create the revised weight. After this revision, the sum of the market cap weights will be 1.

2.1 Trim the smallest 1% of weights, excluding cash
Lipper sorts the weights created in descending order (including cash). In a column next to the weights, we begin to sum the weights. The first row of data in this new column is the weight of the first security. The second row is the sum of the second security's weight plus the weight in row 1 of the new column (as seen in the table below under "Sum of weights"). When this exercise is complete for all securities in the index, including cash, the sum of the weights will be 1. The purpose of this step is to manage the list of securities while maintaining the integrity of the index.[ix]

Note: Due to a legacy issue, the code itself multiplies the weights by US$10 billion prior to the sort. This does not change results, but needs to be recognized during testing.

Micro obj.	Portfolio date	CUSIP	Ticker symbol	Holding name	Shares	Price	Market value	Weight	Sum of weights
LCVE	1/31/00	94974610	WFC	Wells Fargo	5002164.03	454	2270982470	0.43623115	0.436231155
LCVE	1/31/00	4590010	IBM	Intl Business	2516339.08	654	1645685758	0.316118424	0.752349579
LCVE	1/31/00	CASH_USD	CASH_ USD	CASH_USD	568000000	1	568000000	0.109106653	0.861456232
LCVE	1/31/00	61744644	MWD	Morgan St.	3530013.63	77	271811049.5	0.052211961	0.913668193
LCVE	1/31/00	44181510	HI	Household	5519979.09	43	237359100.9	0.045594114	0.959262307
LCVE	1/31/00	88020810	TXN	Texas Instr.	2502894.74	64	160185263.4	0.030769855	0.990032163
LCVE	1/31/00	2581610	AXP	American E.	2078608.84	24	4988607.36	0.009582677	0.99961484
LCVE	1/31/00	79387G10	SBC	SBC Comm.	480650.2	0.417	2005100.96	0.00038516	1

2.2 Remove the securities representing less than 1% of the index
Lipper identifies the security in which the sum of weights exceeds 1%. We remove all securities starting from zero to the first security with a sum of weights in excess of 1%.[x]

3. **Reweigh index with remaining securities including cash**

   Now that the securities representing the bottom 1% of weights have been trimmed, revised market values are created. For the remaining securities in each index, including cash, we sum the market values. We divide each individual security's market value by the sum of the index market value to create the revised weight. After this revision, the sum of the market cap weights will be 1.[xi]

4. **Create index market values**

   Initial market values are created by multiplying the percentage of TNA weights for each security and cash by $10 billion.[xii]

5. **Final data table**

   5.1 Create share values in various currencies
   Shares are calculated by dividing the security market values by their respective prices in the primary currency for a given sector. At this point, we no longer need the market value column for client delivery. However, this column is valuable for testing, and client queries should therefore be stored.

   Final table content and specifications:

   investment objective/classification code
   portfolio date
   identifier
   name
   shares
   price USD
   market value USD
   price EUR
   market value EUR
   price GBP
   market value GBP
   price CHF
   market value CHF
   price JPY
   market value JPY

   5.2 Update portfolio dates to trade dates
   The final step is to convert the portfolio dates from month-end dates to last trading day of the month dates.

Additional Specifications

Pricing source

Refinitiv Lipper uses prices from the Refinitiv Ratios and Statistics (RAS) file. The price field used within the RAS file is NPRICE and the pricing date field is PDATE.

Frequency

Active Indices are created once per month. They are based on portfolio data that has a 50-day lag, except in the UK where there is only a 15-day lag.

Portfolio dates

Funds are grouped with a portfolio date within three calendar days (inclusive) of the month-end date. We give these funds a new portfolio date (for the purpose of the Active Indices) of the last trading day of the month. For example, all fund holdings files delivered to Lipper with a portfolio date of 27.09.2001, 28.09.2001, 29.09.2001 or 30.09.2001 should be grouped together and given a "new" portfolio date of 28.09.2001.

The date format is dd.mm.yyyy. Funds with a portfolio date that is NOT within three calendar days (inclusive) of the month-end date should be disregarded.

Treatment of short positions

Short positions are netted against long positions and net short positions are allowed even if unlikely to occur.

Asset allocation requirements

Asset allocation requirements are based on the Refinitiv Lipper fund classification definitions (see **Fund classification methodologies for Active Indices**). Active Indices for mixed asset classifications will only be calculated on their respective equity and cash portions.

Index suspension

When an index no longer meets the minimum maintenance requirements, it will be suspended. In order for it to be re-established, the index must meet the minimum launch requirements again. Once these are met, and if there is a minimum of 20% portfolio coverage and 10% TNA coverage for the intervening months, then where possible the missing months will be calculated. If the historical minimums cannot be met, or it is not feasible to calculate the missing data, the index will be relaunched with a price of 100. Refinitiv Lipper will store the old index as obsolete for future reference.

Custom Active Indices

Custom Active Indices can be created with a specific list of target funds from a single Refinitiv Lipper fund classification. The general index creation and maintenance requirements as defined above (see **Creation and Maintenance Requirements for Active Indices**) may apply, depending on the delivery method.
If Lipper produces the index, it must meet these requirements; however, if the calculation is used in desktop applications, the maintenance requirements may not apply. The funding list may contain more than one classification, in which case the creation and maintenance requirements apply for each classification.

Further detail around custom indices will follow based on future product enhancements.

Third-party attribution providers

Refinitiv Lipper strives to work with its partners in order to recognize 99.5% of the securities in an Active Index.

i Testing/QC. Calculate rolling one-month annualized tracking errors between the sector average and the Active Index. Highlight changes in tracking errors. Also track changes in security weight from month to month and identify outliers.
ii Testing/QC. Verify that all portfolios available are included in the Active Index, with proper embargoes applied. QA report needs to return number of funds and assets included on a monthly basis.
iii Testing. Ensure these fund types are removed.
iv Testing. Ensure securities with less than US$100 million are removed.
v Testing. Ensure all combinations of launch and maintenance scenarios are tested (i.e., pass a but not b, b not a, etc.).
vi Testing. Ensure the rollup (aggregation) works with securities traded on multiple exchanges but with the same primary RIC. Ensure ADRs are adjusted by the ADR-to-share ratio.
vii Testing. Make sure cash equivalents are included in the cash weight. Make sure cash data comes from holdings data (not survey data).
viii Testing. Ensure that the proper currency has been assigned to cash.
ix Testing. Ensure prior to the sort that securities with less than USD $100 million are removed, aggregation has removed duplicates, and cash is included.
x Testing. Ensure the bottom 1% of the security is removed.
xi Testing. Ensure the new weights add to 1 or 100%.
xii Testing. Ensure USD $10 billion is being applied to the revised, not initial, weights.