MORNINGSTAR®

Construction Rules for Morningstar® MLP Composite Index

Morningstar Methodology Paper
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Morningstar MLP Index Characteristics

Overview

The Morningstar MLP Composite Index is designed to track U.S. publicly trading energy master limited partnerships. This is a diversified, distribution-dollar weighted index that targets the top 97% of publicly trading energy master limited partnerships by float market capitalization.

Inception Dates and Base Market Values

The inception date of the Morningstar MLP Composite Index is June 16, 2000. Daily price and total return series are available from these dates forward. The index base market value at inception is 1,000.

Calculation and Dissemination of Index Values

Index values for the Morningstar MLP Composite Index are currently calculated once a day after the market's close and disseminated to major market vendors globally.

Index Value Currencies

The closing values of all Morningstar indexes are calculated in U.S. dollars and converted to yen, pounds sterling, and euros using an average of the Reuters bid and ask prices.

Scheduled Reconstitution Dates

The Morningstar MLP Composite Index is reconstituted i.e., the index membership is reset-twice annually, on the Monday following the third Friday of June and December. If the Monday is a holiday, reconstitution occurs on the Tuesday immediately following. Reconstitution is carried out after the day's closing index values have been determined.

Scheduled Rebalancing Dates

The Morningstar MLP Composite Index is rebalanced i.e., the security weights are adjusted four times annually. Adjustments are made on the Monday following the third Friday of March, June, September and December. If the Monday is a holiday, rebalance occurs on the Tuesday immediately following.

Unscheduled Rebalancing and Reconstitution

The Morningstar MLP Composite Index is rebalanced whenever a constituent's free float changes by 10% or more. However, if one company takes over another and both were index constituents, their shares and free float are adjusted even if the change is less than 10%. Rebalancing is carried out at the close of trading on the day of the event.

In the event of a corporate action resulting in deletion of a security from the MLP Composite Index, a divisor adjustment is made to reflect the decrease in market value.

Assigning Stocks to the MLP Indexes

Overview

At each reconstitution date, the MLP investable universe and index eligibility are defined based on the criteria described in this section. The investable universe and index eligibility criteria are applied in the sequence in which they appear below. Each criterion is applied only to the "survivors" of the criteria applied previously.

Investable Universe

To qualify for inclusion in the MLP investable universe, a security must meet the following criteria:

- The issuing company must be either (a) structured as a master limited partnership as defined in Title 26, Sections 6231 and 7704 of U.S. Code or (b) structured as a limited liability company that distributes K-1 dividends.
- The issuing company must be involved in the production, processing, or transportation of energy or natural resources. Energy companies are those classified in the following Morningstar Industries:
    - Chemicals
    - Coal
    - Industrial Distribution
    - Oil & Gas Drilling
    - Oil & Gas E&P
    - Oil & Gas Equipment & Services
    - Oil & Gas Integrated
    - Oil & Gas Midstream
    - Oil & Gas Refining & Marketing
    - Shipping & Ports
    - Utilities - Diversified
    - Utilities - Regulated Gas
- It must trade on one of the three major exchanges: the New York Stock Exchange, NYSE Amex Equities, or Nasdaq.

- The issuing company's country of domicile should be the United States or the issuing company's primary stock market activities are carried out in the U.S.
- Securities that have more than 10 non-trading days in the prior quarter are excluded.
- Securities with a float market cap of under $500 million are excluded.
- The following security types do not qualify:
  - American depositary receipts and American depositary shares
  - Fixed-dividend shares
  - Convertible notes, warrants, and rights
  - Tracking stocks

Index Selection

Each security that meets these general criteria is considered for inclusion in the MLP Composite Index. The stocks in the investable universe that meet eligibility criteria are ordered by market capitalization in descending order. Selecting by size in descending order, the stocks that, in aggregate, account for 97% of the total float market capitalization of the investable universe are assigned to the MLP Composite Index.

Index Calculations

Overview

The value (price) and total return of an index is calculated using Laspeyres' formula.

$$Index(t) = \frac{\sum_{i=1}^{n}(p_{i(t)} * q_{i(t)})}{C(t)\sum_{i=1}^{n}(p_{i(0)} * q_{i(0)})} * BaseIndexValue = (M(t) / B(t)) * BaseIndexValue$$

The above formulas can be simplified as: $\text{Index(t)} = \frac{\text{M(t)}}{\text{D(t)}}$

Where:

D(t)	=	divisor at time (t)=B(t)/Base Index Value
n	=	number of stocks in the index
$p_i(0)$	=	closing price of stock i at the base date
$q_i(0)$	=	index shares of company i at the base
$p_i(t)$	=	price of stock i at time (t)
$q_i(t)$	=	index shares of company i at time (t)
C(t)	=	adjustment factor for the base date market capitalization
t	=	time the index is calculated
M(t)	=	market capitalization of the index at time (t)
B(t)	=	adjusted base date market capitalization of the index at time (t)

*Dividends are reinvested in the index sample of the total return index.

Constituent Weighting

The MLP Composite Index is a fundamentally weighted index. The index is weighted according to the distributions paid by each security that are available to investors. Consequently, the available dividend dollar value is the product of the security's shares outstanding, free float factor, and annual indicated distribution per share.

MLP Composite Index weight (IW) is determined by:

(1) $$IW_{i(t)} = \frac{d_{i(t)} * s_{i(t)} * f_{i(t)}}{\sum_{i=1}^{n} \left(d_{i(t)} * s_{i(t)} * f_{i(t)} \right)}$$

and the index shares ($q_i(t)$) for each constituent in the respective index calculation formula are:

(2) $$q_{i(t)} = \frac{IW_{i(t)} * \mathrm{M(t)}}{p_{i(t)}}$$

Where:

n	=	number of stocks in the index
$p_i(t)$	=	price of stock i at time (t)
$s_i(t)$	=	total outstanding shares of company i at time (t)
$f_i(t)$	=	free float factor of company i at time (t)
(t)	=	time the index weights are calculated
M(t)	=	total market value of the index at time (t)

Weighting Adjustments

Morningstar makes adjustments to the index weighting ($IW_i(t)$) of MLP Composite when the weight of a single constituent exceeds the maximum weight allowed. The maximum weight is 10%. In such instances, the excess weight is distributed among the remaining constituents. The methodology is explained below.

The 5-50 Rule

The IRS defines a diversified portfolio as one in which the largest weight does not exceed 25% and in which the sum of the weights that are each greater than 5% does not exceed 50%. We call this latter condition the 5-50 rule.

For a given set of weights, $w_1, w_2, \ldots, w_N$, with $w_1 \geq w_2 \geq \ldots \geq w_N$, and $\sum_{i=1}^{N} w_i = 1$, we test to see if the 5-50 rule holds as follows:

Let

$$w_i^* = \begin{cases} w_i, & \text{if } w_i \geq 0.05 \\ 0, & \text{if } w_i < 0.05 \end{cases}$$

If $\sum_{i=1}^{N} w_i^* \leq 0.5$, the 5-50 rule holds.

Let:

N	=	number of stocks in the portfolio
Cap	=	maximum weight that we allow for any stock, currently 10%
x_i	=	original weight of the i^{th} largest stock in the portfolio, $x_1 \geq x_2 \ldots \geq x_N$
		$\sum_{i=1}^{n} x_i = 1$

If $x_1 \leq$ cap, we cannot reweight. If the 5-50 rules holds for $x_1, x_2, \ldots, x_N$, no reweighting is needed. If the 5-50 rule does not hold, the cap should be set to a value less than x_1 and the following algorithm should be tried. If we start with $x_1 >$ cap, we try the algorithm described below.

Morningstar reweights using a two-part linear function as follows:

$$(1) \qquad y_i = \begin{cases} y_K + \beta_1 (x_i - x_K), & \text{if } i \le K \\ \beta_2 x_i, & \text{if } i \ge K \end{cases}$$

where K is the index of the stock at which the function is kinked. Note that this reweighting preserves the relative weights of all stocks beginning from the K^{th} stock.

Given K, we need to set β_1 and β_2. From equation (1), it follows that

$$(2) \qquad \beta_1 = \frac{y_1 - y_K}{x_1 - x_K}$$

and

$$(3) \qquad \beta_2 = \frac{y_K}{x_k}$$

We set

$$(4) \qquad y_1 = \text{cap}$$

We need to set y_K so that $\sum_{i=1}^{N} y_i = 1$ Some algebra shows that this occurs when

$$(5) \qquad y_K = \frac{1 - \gamma y_1}{(K-1) - \gamma + \frac{1-z}{x_K}}$$

Where (6) $$z = \sum_{i=1}^{K-1} x_i$$

And (7) $$\gamma = \frac{z - (K-1)x_K}{x_1 - x_K}$$

We chose K to maximize the number of stocks for which relative weights are preserved. This occurs at the lowest value of K for which $y_K \leq y_1$. Hence, our reweighting algorithm is as follows:

1. Set $z=0$, $y_1=$cap, and $K=1$
2. If $K<N$, set $K=K+1$; otherwise go to step 8
3. Set $z=z+x_{K-1}$
4. Set γ and y_K using equations (7) and (5) respectively
5. If $y_K>y_1$, go back to step 2
6. Set β_1 and β_2 using equations (2) and (3) respectively
7. For $i = 1,\ldots, N$, set y_i using equation (1)
8. If the 5-50 rule holds for $y_1, y_2, \ldots, y_N$, this is the solution, so stop Otherwise go back to step 2
9. There is no solution that meets the 5-50 rule with this cap

In addition Morningstar monitors the portfolio at each rebalance in the following manner. The Undertakings for Collective Investments in Transferable Securities Directive of 1985 ("UCITS"), as amended, sets out among matters, the permitted investment and diversification requirements of collective investment schemes structured as UCITS ("CIS").

This index is designed to be compliant with the UCITS rules for replicating the return of an index which provide that a CIS may invest to a maximum of 20% for investment in shares or debt securities of the same body provided that the index being replicated is sufficiently diversified, represents an adequate benchmark for the market to which it refers and is published in an appropriate manner.

UCITS Eligibility: Should the 10% limited referred to above change it should be noted that, for the purpose of ensuring on-going UCITS compliance, the maximum weighting of any one constituent will at all times be capped at 20%. However, Morningstar reserves the right, that if due to exceptional market circumstances, it may increase the weighting of one constituent of the Index to a maximum of 35%. As soon as Morningstar becomes aware of any such market conditions that may arise to such an increase in a constituent weighting, it will publish this information and afford investors (both direct and indirect) an opportunity to make any required regulatory filings or notifications to any regulatory authority in order for the Index to remain eligible for UCITS investment.

Divisor Adjustments

To avoid distortions caused by corporate actions that affect the market values of index constituents, the divisor of the index is adjusted accordingly. The following formulas will be used for divisor adjustments due to corporate action. Note: No divisor adjustment is necessary for stock splits, since market capitalization does not change and the share number and share price are adjusted before the opening of trading on the split's ex-date.

$$D_{t+1} = D_t * \frac{\sum_{i=1}^{n}(p_{i(t)} * q_{i(t)}) \pm [\Delta MC(t+1)]}{\sum_{i=1}^{n}(p_{i(t)} * q_{i(t)})}$$

Where:

D(t)	=	divisor at time (t)
D(t+1)	=	divisor at time (t+1)
P_i(t)	=	stock price of company i at time (t)
q_i(t)	=	number of shares of company i at time (t)
DMC(t+1)	=	add new components' market capitalization and adjusted market capitalization (calculated with adjusted closing prices and shares effective at time t+1 and/or minus market capitalization of companies to be deleted (calculated with closing prices and shares at time t)

Note: If the current trading price of an issue is unavailable, the previous trading session's closing price is used. However, if the issue is affected by any corporate action that requires an adjustment, then the adjusted price is used.

Corporate Actions

The following actions, subject to the unscheduled rebalancing rule, will require the calculation of an adjustment factor that will be included in the pre-market-open index calculation described in the previous section, "Index Calculations."

Spin-Offs

Issues spun off by index holdings (parent companies) are not added to the index but will be considered for inclusion at the next reconstitution.

Mergers and Acquisitions

When two components in the Composite Index merge, their component positions will be replaced by the surviving company immediately. Float-adjusted shares outstanding are updated and a corresponding divisor adjustment is implemented if required, based on the terms of the action.

If an index constituent acquires or merges with a company that is not a component of the index, then the original entity is replaced by the security of the successor entity, but in this case the weight of the new entity is equal to the market value of the original index constituent. No divisor adjustment is necessary because the market value remains unchanged. For the Composite Index, the weight of the new entity is determined by the terms of the merger and reflects the new total shares and float block.

If an index constituent is the target of an acquisition or merger by a company that is not an index component, the original constituent is deleted from the index.

Stock Dividends / Splits

Stock splits and dividends do not require a divisor adjustment because the market value of the entity remains unchanged.

Share Repurchase/Offering

Alterations to the shares outstanding of a constituent of the Composite Index will require a divisor adjustment subject to rules of the unscheduled rebalance.

Company ceases to be an MLP

A company is removed from the index if it ceases to be an MLP as defined in the 'Investable Universe' section. The deletion triggers an unscheduled reconstitution (see "Unscheduled Rebalancing and Reconstitution" for further details).

Change of Principal Exchange

A security is removed from the index if its principal exchange ceases to be the NYSE, NYSE Amex Equities, or Nasdaq. The deletion triggers an unscheduled reconstitution (see "Unscheduled Rebalancing and Reconstitution" for further details).

Change of Domicile

If a company ceases to meet the domicile eligibility rule, it is removed from the index. The deletion triggers an unscheduled reconstitution (see "Unscheduled Rebalancing and Reconstitution" for further details).

Loss of Liquidity

If a constituent accumulates 10 consecutive non-trading days between reconstitution dates, it is removed from the index. Two business days' prior notice of its removal is provided. The deletion triggers an unscheduled reconstitution (see "Unscheduled Rebalancing and Reconstitution" for further details).

Data Correction and Precision

Intraday Index Data Corrections

Commercially reasonable efforts are made to ensure the correctness of data used in real-time index calculations. If incorrect price or corporate action data affect index daily high or lows, it is corrected retroactively as soon as feasible.

Index-Related Data and Divisor Corrections

Incorrect pricing and corporate action data for individual issues in the database will be corrected upon detection. In addition, an incorrect divisor of an index, if discovered within five days of its occurrence, will always be fixed retroactively on the day it is discovered to prevent an error from being carried forward. Commercially reasonable efforts are made to correct an older error subject to its significance and feasibility.

Computational and Reporting Precision

All calculated and adjusted data are stored in real numbers. For reporting purposes, index values are rounded to two decimal places and divisors are rounded to appropriate decimal places. The actual number of shares is used to determine the number of shares outstanding for the free float weighting.

Undocumented Events

Any matter arising from undocumented events will be resolved at the discretion of the Morningstar Index Committee.