



Syntax Stratified LargeCap ESG Index (SYESG) Rulebook

18 September 2022

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1 Methodology Scope

This methodology covers the following Syntax indices:

Index Name	Index Ticker	Total Return Index (TR) or Price Return Index (PR)
Syntax Stratified LargeCap ESG Index	SYESG	PR
Syntax Stratified LargeCap ESG Index (TR)	SYESGTR	TR



2 Index Objectives

Syntax® Stratified Indices™ are a family of U.S. equity indices that weight constituents based on Syntax's patented methodology to control exposure to related business risks (RBRs). Traditional indices do not control for related business risks and are thus vulnerable to poor performance when economic shocks impact companies that are exposed to the same business risks. Stratified Weight diversifies indices by establishing target weights for RBRs and rebalancing to these targets every quarter. This methodology is designed to mitigate the adverse effects of inadvertent over-weightings of related businesses that regularly occur in the market without sacrificing upside potential.

2.1 Syntax Stratified LargeCap ESG Index

The Syntax Stratified LargeCap ESG index seeks to provide investors with exposure to large cap U.S. companies that best manage environmental, social, and governance risks material to their business.

The Syntax Stratified LargeCap ESG Index screens and reweights the constituents of the Syntax 500 Index for ESG considerations. The Syntax Stratified LargeCap ESG Index scores each constituent of the Syntax 500 Index based on material ESG risks and holds only the top 67% of scorers in each industry group. The weight of the remaining constituents is tilted towards better scoring ESG companies while maintaining proportional industry and sector weights adhering to Syntax's patented Stratified Weight methodology to control exposure to related business risks (RBRs).



3 Universe Selection & Business

Involvement Screening

The Syntax Stratified LargeCap ESG Index uses the constituents of the Syntax 500 Index, whose constituents are selected to take the largest 500 stocks by market cap in the U.S. The Syntax Stratified LargeCap ESG Index begins with the exact constituents of the Syntax 500 Index and screens companies that earn greater than 10% of their revenue from producing tobacco, weapons or coal. The index further screens companies based on Syntax's proprietary ESG score, including in the index only the top 67% of scorers in each industry group. The universe selection, business involvement screen, and ESG score screen are reimplemented at each rebalance.



4 ESG Scoring Methodology

Scores are calculated for each constituent as the weighted average of 2 pillars:

- a. The Environmental & Social (“E&S”) pillar score, which receives two-thirds of the weight in the average; and
- b. The Governance (“G”) pillar score, which receives one-third of the weight in the average.

The E&S pillar is calculated by taking the weighted average of the scores of all material metrics in an ESG dataset licensed from ISS ESG. Material scores are determined by mapping ISS ESG metrics to SASB materiality categories. Materiality categories are defined using Syntax’s Functional Information System data to identify characteristics of businesses that are sensitive to particular environmental and social considerations. These FIS definitions are intended to provide an algorithmic and granular method of associating SASB materiality categories with companies.

In the event of missing ISS data for a company for a given material metric, that metric will not be counted towards the score. If data is missing for an entire SASB materiality category for a company, the Syntax will reference Bloomberg data that corresponds to that SASB category, if the Bloomberg data is available. If that data is not available through Bloomberg, the company receives a value equal to the worst value assigned for that metric across all companies in the index. For example, if the worst (in this case greatest) value found using available data in the metric “GHG Emissions” is 10,000 Metric Tons CO₂, the companies without data in that metric will be assigned that a value of 10,000 Metric Tons of CO₂. This data is then divided by the company’s revenue. For binary, Yes/No metrics, missing data is assigned a value of 0.

There are 3 levels of significance for each materiality category, which are given differential weight in the calculation of the E&S pillar score.

- a. High materiality (60% weight)
- b. Moderate materiality (30% weight)
- c. Low materiality (10% weight)

For each level of materiality, corresponding materiality categories are averaged out to get a final level score. For example, if there are three materiality categories mapped to a ‘High’ materiality, the scoring model will take the average of those three materiality category scores as the ‘High’ score. Scores for each metric in a given materiality category are then calculated as the materiality-weighted averaged of the ‘High’, ‘Moderate’, and ‘Low’ scores for each materiality category for a company.

In the event that no metrics are associated to one or more of the materiality levels, these weights are adjusted *pro rata*. For example, if no metrics are associated with ‘Moderate’ materiality, the weight in



'High' will be adjusted to 85% and the weight for 'Low' will be adjusted to 15%. Every company is associated with at least one material metric.

The Governance pillar is considered universally material for all metrics and companies. Governance metrics are sourced from Bloomberg and ISS ESG. Governance metrics were selected by Syntax to reflect academic consensus and industry best-practices. Some metrics, such as diversity, were chosen because they have both well-accepted theoretical and empirical evidence for impacting security returns. Other metrics, such as the shareholder democracy metrics, were chosen to most closely align the Governance pillar with the goals of the E&S pillar and the goals of the overall ESG index (in the case of shareholder democracy, this goal is active ownership).

The Governance pillar has 4 sub-pillars:

- a. Ethics
- b. Diversity
- c. Long-termism
- d. Shareholder democracy

Each sub-pillar is given equal weight in calculating the G pillar, but sub-pillars may contain different numbers of underlying metrics.

The 'Diversity' sub-pillar is further broken down into three components. The 'Diversity' sub-pillar is calculated as an equal weight of:

- a. Board Diversity
- b. Executive Diversity
- c. Operational Diversity

Note that the diversity metrics are skewed towards gender diversity due to data availability.

The 'Ethics' sub-pillar has two components: an ISS ESG ethics score and a Bloomberg Independence score (whether or not a company has an independent board director/chairperson). The Ethics score is calculated as the weighted average of the ISS ESG ethics score (75% weight) and the Bloomberg independence score (25% weight).

For the 'Long-termism' and 'Shareholder Democracy' pillars, each underlying metric is given equal weight.

In the event of missing Bloomberg data for metrics underlying the G pillar, the company with missing data is assigned a score of 0 for that metric. In the event of missing ISS data for metrics underlying the G pillar, that metric is excluded from the score calculation for that company.



5 Index Information

Launch Date: 18 September 2020

First Value Date: 20 December 2013

Base Date: 20 December 2013

Base Value: 1000

Currency: USD

Rebalancing: The Syntax LargeCap ESG Index rebalances quarterly, at the close on the third Friday of the quarter-ending month (March, June, September, December). Index share counts are assigned using closing prices from the second Friday of the quarter-ending month (i.e. one week prior to rebalance). Therefore, the actual weight of each constituent at the rebalance differs from the target weight due to market movements.

Additions, Deletions, and Replacements: The Syntax LargeCap ESG Index follows the deletion schedule of the Syntax 500 Index. Because Syntax 500 replacement constituents may fail to pass the ESG screen, the Syntax LargeCap ESG Index does not add or replace constituents intra-rebalance, except as the result of corporate actions detailed below.

Aside from changes to constituency at rebalance, companies are only removed from the Syntax 500 Index, and thus the Syntax LargeCap ESG Index, as the result of corporate actions. The treatment of corporate actions that may result in deletion from the index are detailed below. When a company is deleted from the Syntax LargeCap ESG Index, a subsequent divisor adjustment takes place to the Syntax LargeCap ESG Index.

Except for the treatment of corporate actions detailed below, if a company is added to the Syntax 500 Index in the middle of the quarter, it will not be eligible for addition to the Syntax LargeCap ESG Index until the subsequent rebalance.



Calculation: The Syntax LargeCap ESG Index is calculated by S-Network Global Indexes, Inc. Calculations are performed using S-Network data and are calculated in accordance with the universe selection, corporate action, and weighting methodology detailed in this document. Please see important disclaimers at the end of this document.



6 Corporate Action Methodology

Corporate actions (including stock splits, stock dividends, spin-offs, and rights offerings) that impact the Syntax LargeCap ESG Index constituents are applied after the close of trading on the day prior to the ex-date. Share changes resulting from exchange offers are made on the ex-date.

- Spin-offs:** The spun-off company is added to the index at a zero price at the market close of the day before the ex-date with no divisor adjustment. Syntax will remove the spin-off from the index under certain circumstances at its discretion, at which time the spin-off will be deleted, resulting in a divisor adjustment.
- Dividends:** The index divisor is adjusted on the morning of each index constituent's ex-date to account for the reinvestment of the related dividend across the entire index.
- Special Dividends:** The price of the stock making the special dividend payment is reduced by the per-share special dividend amount after the close of trading on the day before the dividend ex-date. The index divisor is adjusted to account for the reinvestment of the special dividend across the entire index.
- Rights Offering:** Rights issues are only enacted if they are in the money. In the event of an enacted rights issue, the price is adjusted for the value of the right immediately prior to the open on the ex-date, and the shares are increased to maintain the constituent's existing weighting within the index.
- Share Changes:** Changes in the number of shares outstanding, typically due to share repurchases, tenders, or offerings, will not be reflected in the index.
- Bankruptcy:** Upon a company filing for bankruptcy, it will be deleted from the index. If the stock is halted on or delisted from its usual exchange, the stock may be deleted from the index with a presumed market value of \$0.01.



When a security is in FDIC Receivership, it is deleted from the index at the earliest reasonable date.

Bonus Issues, Stock Splits, and Reverse Stock Splits:

For bonus issues, stock splits, and reverse stock splits, the number of shares included in the index will be adjusted in accordance with the ratio given in the corporate action. Since such events will not change the value of the company included in the index, the divisor will not be adjusted when such corporate actions occur.

Mergers and Acquisitions:

In the event of a merger or acquisition between two companies in the index, the divisor is adjusted by the market value of the removed constituent as of the market close the day prior to the effective date. In the case of special events that cause a derived price to be used instead, this will be communicated to clients prior to the effective date.

In the event that a company in the index merges with or acquires a company outside of the index, no change is made to the index, except for any necessary updates to ticker or symbol.

In the event that a company not in the index acquires or merges with a company in the index, any acquirer not already in the index will not be added to the index. Further, the divisor is adjusted by the market value of the removed constituent as of the market close the day prior to the effective date. In the case of special events that cause a derived price to be used instead, this will be communicated to clients prior to the effective date.

In the event that a merger or acquisition occurs immediately followed by a spin-off of the acquirer:

In the event that a merger or acquisition occurs between two companies in the index, or in the event that a company in the index acquires or merges with a company outside of the index, the treatment of the merger or acquisition is as above and the spin-off will remain in the index.

In the event that a company not in the index acquires or merges with a company in the index, the treatment of the merger or acquisition is as above and the spin-off will not be added to the index.



7 Weight Generation and Rebalance

The Syntax Stratified LargeCap ESG Index diversifies constituents across groups of related business risks as defined by the patented FIS classification system. Syntax uses stratification, a common technique used in statistics, to control exposure to related business risks.

Each Syntax Index has a Syntax Stratified Weight Architecture that outlines a hierarchy of related business risk groups that form the basis for each constituent's weight. Related business risk groups at each level of the Stratified Weight Architecture are defined by a sequence of FIS tags, and every constituent is allocated to exactly one related business risk group at each level of the Syntax Stratified Weight Architecture. This allocation takes place by matching the FIS tags applied to the company against the sequence of FIS tags that define the related business risk group. Target weights for groups in the Stratified Weight Architecture are determined by a hierarchical equal weight process.

At least two weeks prior to each quarterly rebalance, Syntax conducts a quality control review of each index's Stratified Weight Architecture to verify that it continues to be representative of the relevant related business risks present in the set of constituents. Syntax also implements a quarterly review on constituents in the index that underwent a merger, acquisition, or spin-off to determine if these corporate actions necessitate a change to the function of the business and, in turn, changed the constituent's FIS tags. Annually, Syntax conducts a review of the FIS tags.

Security weights are calculated by first assigning an initial weight to each company as an equal weight of the number of securities in each bottom-level group in the Stratified Weight Architecture, after excluding the lowest-scoring 33% of constituents in each bottom-level group. The weights of the remaining constituents are adjusted based on the z-score of their ESG scores within their bottom-level industry group as follows:



Calculate ESG Z-scores for each company in the group, where:

$$Z_i = \frac{x_i - \mu_i}{\sigma_i}$$

x_i = score for company i , as calculated in section 4.

μ_i = mean score of all companies in the bottom-level group to which company i belongs

σ_i = standard deviation of scores of all companies in the bottom-level group to which company i belongs

Translate Z-scores to Relative ESG Scores using the following algorithm:

if $Z \geq 0$, Relative ESG score = $1 + Z$

if $Z < 0$, Relative ESG score = $\frac{1}{1-Z}$

Tilt the weight of each company in each level 3 FIS industry group proportional to Relative ESG Score:

Final Weight = Initial Weight * Relative ESG Score

Note that this process does not change the total weight assigned to each level 3 FIS industry group; the sum of the initial weights of all securities in each level 3 FIS industry group is equal to the sum of the final weights of the same level 3 FIS industry group.



8 Index Calculations

Syntax Indices are calculated by S-Network Global Indexes. Below is a summary of the basic math used to calculate Syntax Indices.

P_i = price of shares of stock i in the index

Q_i = quantity of shares of stock i in the index

$Shares_i$ = number of shares of stock i in the index

The index value is the index market value divided by the index divisor:

$$Index\ Value = \frac{Index\ Market\ Value}{Divisor}$$

$$Index\ Market\ Value = \sum_i P_i * Shares_i$$

The index level can be written as:

$$Index\ Level = \frac{\sum_i P_i * Q_i}{Divisor}$$

To maintain the continuity of the index, it is also necessary to adjust the divisor at each rebalance:

$$Index\ Level\ (before\ rebalance) = Index\ Level\ (after\ rebalance)$$

Which means that:

$$Divisor\ (after\ rebalance) = \frac{Index\ Market\ Value\ (after\ rebalance)}{Index\ Value\ (before\ rebalance)}$$

Calculating the Divisor Adjustment:

As described Section 6, certain corporate actions will trigger a divisor adjustment in the index.

A divisor is a factor by which the total market value of an index is divided to give a scaled, and more easily handled, number.

The divisor allows continuous measurement of market valuation because it ensures that the value of the index does not fluctuate across events that do not stem from the performance of the index.



The following formula expands the original formula for calculating the Index Level to show the stock, r , which is being removed separately.

$$Index\ Level_{t-1} = \frac{(\sum_i P_i * Q_i) + P_r Q_r}{Divisor_{t-1}}$$

Similarly, rewriting the Index Level after the addition of stock s to show that stock separately:

$$Index\ Level_t = \frac{(\sum_i P_i * Q_i) + P_s Q_s}{Divisor_t}$$

Where $t-1$ is the moment immediately preceding the deletion of stock r and t is the moment immediately after the addition of stock s . By design, $IndexLevel_{t-1}$ exactly equals $IndexLevel_t$. This allows us to rewrite the above as:

$$\frac{(\sum_i P_i * Q_i) + P_r Q_r}{Divisor_{t-1}} = Index\ Level = \frac{(\sum_i P_i * Q_i) + P_s Q_s}{Divisor_t}$$

Let the left-most and right-most numerators be the Market Value, MV , of the index at times $t-1$ and t .

MV_t , MV_{t-1} , and $Divisor_{t-1}$ are all known values. Therefore, we can rearrange the formula to calculate the value of the new divisor:

$$Divisor_t = (Divisor_{t-1}) * \frac{MV_t}{MV_{t-1}}$$

Equivalently, we can write the new divisor as the old divisor plus the percentage change in index value from the event. Rearranging the formula for the Index Value:

$$Divisor = \frac{MV}{Index\ Level}$$

Let CMV be the change in market value from the addition and deletion. Because the Index Level will not change, the new divisor must be:

$$Divisor_{New} = \frac{MV + CMV}{Index\ Level}$$

Because $MV/IndexLevel$ is the divisor, we can rewrite this as:

$$Divisor_{New} = Divisor_{Old} + \frac{CMV}{Index\ Level}$$



9 Index Dissemination

Syntax U.S. Indices are calculated by S-Network Global Indexes. Daily levels can be found via Bloomberg as well as the websites of other major data providers.



10 Disclaimers

The Syntax Stratified LargeCap ESG Index is the property of Syntax, LLC, which has contracted with S-Network Global Indexes, Inc. to calculate and maintain the Index. The Index is not sponsored, endorsed, sold or promoted by S-Network Global Indexes, Inc. and S-Network Global Indexes, Inc. makes no representation regarding the advisability of investing to track the Index. Syntax®, Stratified®, Stratified Indices®, Stratified-Weight™, and Locus® are trademarks or registered trademarks of Syntax, LLC or its affiliate Locus LP.

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