

## **Introduction**

This document is to be used as a rulebook with regard to the composition, calculation, and maintenance of the Solactive Aging of America 7 ER Index (the “Index”). Any amendments to the rules made to the rulebook are approved by the oversight committee specified in the section “Index Committee”. The Index is owned, calculated, administered, and published by Solactive AG (“Solactive”) assuming the role as administrator (the “Index Administrator”) under the Regulation (EU) 2016/1011 (the “Benchmark Regulation” or “BMR”). The name “Solactive” is trademarked.

The rulebook and the policies and methodology documents referenced herein contain the underlying principles and rules regarding the structure and operation of the Index. Solactive does not offer any explicit or tacit guarantee or assurance, neither pertaining to the results from the use of the Index nor the level of the Index at any certain point in time nor in any other respect. Solactive strives to the best of its ability to ensure the correctness of the calculation. There is no obligation for Solactive – irrespective of possible obligations to issuers – to advise third parties, including investors and/or financial intermediaries, of any errors in the Index. The publication of the Index by Solactive does not constitute a recommendation for capital investment and does not contain any assurance or opinion of Solactive regarding a possible investment in a financial instrument based on this Index.

## **Overview**

The following overview of the Index is a summary and, as such, is necessarily incomplete. This overview should be read in conjunction with, and is qualified in its entirety by, the more detailed description of the Index and its operation that follows in this document.

The Index is comprised of shares of U.S. exchange listed common equity securities (including American Depositary Receipts) (each an “Underlying Stock” and together the “Underlying Stocks”) and, in certain circumstances, a hypothetical cash investment in a notional money market account denominated in U.S. dollars (the “Money Market Position”), which constitute the underlying assets (each an “Underlying Asset” and together the “Underlying Assets”).

### **The Underlying Assets provide the following exposure:**

- The Underlying Stocks provide exposure to companies in the healthcare and real estate sectors that may benefit from the long-term demographic shift towards an older population in the United States and the resulting demand for products and services geared towards managing the health and lifestyle of an aging population.
- The Money Market Position provides exposure to a hypothetical investment in a notional money account denominated in U.S. dollars that accrues interest at a rate determined by reference to the “Notional Interest Rate” (which is 3-Month USD LIBOR, determined as specified in the Annex).

The Index is calculated on an excess return basis. The value of the Index (the “Index Value”) is calculated on each Index Business Day (as defined in the Annex) in U.S. dollars by reference to the excess of the Total Return Index Value (as more specifically described under “Calculation of the Index” below) over the sum of the return on the Notional Interest Rate plus 0.75% per annum (accruing daily).

On any given Index Business Day following the Total Return Index Inception Date (any such day, a “Total Return Index Rebalancing Day”), the Total Return Index may be partially rebalanced from the Base Index into the Deleverage Position as a result of the volatility control feature. The “Deleverage Position” means the Money Market Position. The value of the Total Return Index (the “Total Return Index Value”) is calculated on each Index Business Day by reference to the weighted performance (after rebalancing) of:

1. The Base Index (as more specifically described below) and
2. The Deleverage Position.

The Base Index seeks to provide systematic targeted exposure to the U.S. exchange-listed common equity securities (including American Depositary Receipts) of companies in the healthcare and real estate sectors that may benefit from the long-term demographic shift towards an older population in the United States (the “Aging of America Theme”) and the resulting demand for products and services geared towards managing the health and lifestyle of an aging population. The Underlying Stocks comprising the Base Index and their respective weightings are based on an objective determination of relevance and exposure to the Aging of America Theme (as described under “Components of the Base Index (the “Base Index Components”)” and “Calculation of the Underlying Stock Target Weights” below) on the third Friday of each June (the “Base Index Selection Day”) and subject to constraints on maximum and minimum weights for each Underlying Stock. The Base Index is rebalanced annually over a five-day period (the “Base Index Rebalancing Period”) beginning on the day that is three Index Business Days after the applicable Base Index Selection Day and including the four following Index Business Days. Each Index Business Day in a Base Index Rebalancing Period will be deemed a “Base Index Rebalancing Day”. On each Base Index Rebalancing Day, component changes are made after the close of markets and become effective at the opening on the next trading day.

The value of the Base Index (the “Base Index Value”) is calculated on each Index Business Day.

## **The Methodology**

### **Overview**

At any given time, the Base Index tracks the weighted return of the Underlying Stocks and, in the limited circumstance described under “Short-Term Treasury Bond ETF Position,” the iShares Short-Term Treasury Bond ETF (the “Underlying ETF”).

The composition of Underlying Stocks and the Underlying ETF, if applicable, and their respective weights are rebalanced annually during the relevant Base Index Rebalancing Period within a set of pre-determined constraints by applying the methodology rules. On any Total Return Index Rebalancing Day, the exposure of the Total Return Index to the Base Index may also be ratably rebalanced into the Deleverage Position as a result of the volatility control feature of the methodology. Rebalancing during Market Disruption Events is described under “Rebalancing; Impact of Disruptions”. In addition, the Index Committee intends to review the methodology at least once a year, and may make changes to the methodology from time to time (including after any such annual review) if it determines, in its sole discretion, that such changes are necessary or desirable in light of

the goals of the Index. Any such changes to the methodology will be publicly announced at least 60 Index Business Days prior to their effective date.

### **Base Index Rebalancing**

On each Base Index Selection Day, Solactive, pursuant to the methodology and subject to the applicable constraints, selects the Underlying Stocks with the objective of providing targeted exposure to the Aging of America Theme (as described under “Components of the Base Index (the “Base Index Components”)” and “Calculation of the Underlying Stock Target Weights” below). Once the constituents and their exposure to the Aging of America Theme have been determined, Solactive will determine the target weight for each Underlying Stock (as described under “Calculation of the Underlying Stock Target Weights” below) and the Underlying ETF Target Weight (as described under “Short-Term Treasury Bond ETF Position”), if applicable. The Base Index will then be reweighted over the Base Index Rebalancing Period from the previous Underlying Stocks and their weights (as described under “Calculation of the Underlying Stock Target Weights” below) and the weight of the Underlying ETF (as described under “Short-Term Treasury Bond ETF Position”), if applicable, to the newly determined Underlying Stocks using the newly determined Underlying Stock Target Weights and Underlying ETF Target Weight, if applicable.

### **Total Return Index Rebalancing and Volatility Control Feature**

The methodology has a volatility control feature applied on any Total Return Index Rebalancing Day. This has the effect of reducing the exposure of the Total Return Index to the performance of the Base Index (and consequently the Underlying Stocks) by rebalancing a portion of the Base Index into the Deleverage Position if the realized volatility of the Base Index exceeds the Volatility Cap (as defined under “Total Return Index Rebalancing and Volatility Control” below) with respect to any Total Return Index Rebalancing Day.

### **Notional Interest Rate**

The Index is calculated on an excess return basis over the sum of 0.75% per annum (accruing daily) and the return that could be earned on a notional cash deposit at the Notional Interest Rate, compounded daily. The Notional Interest Rate will be reset quarterly, on each January 2, April 2, July 2, and October 2 or, if one of those dates is not an Index Business Day, on the Index Business Day immediately following such date, starting from and including the Money Market Position’s Asset Index Inception Date. Each such date is referred to herein as a “Notional Interest Rate Reset Date”.

### **Identifier and Publication**

The Index is published under the following identifier:

<b>Name</b>	<b>ISIN</b>	<b>Currency</b>	<b>Type</b>	<b>RIC</b>	<b>BBG ticker</b>
Solactive Aging of America 7 ER Index	DE000SLOAS02	USD	ER*	.SOLAOAER	SOLAOAER Index

\* ER means that the Index is calculated as an excess return Index as described below in “Calculation of the Index”.

The Index is published on the website of the Index Administrator ([www.solactive.com](http://www.solactive.com)) and is, in addition, available via the price marketing services of Boerse Stuttgart GmbH and may be distributed to all of its affiliated vendors. Each vendor decides on an individual basis as to whether it will distribute or display the Index via its information systems.

Any publication in relation to the Index (e.g. notices, amendments to the methodology) will be available at the website of the Index Administrator:  
<https://www.solactive.com/news/announcements/>.

### **Prices and Calculation Frequency**

The level of the Index is calculated on each Index Business Day from 3:30 p.m. to 10:50 p.m. CET based on the Trading Prices on the Exchanges on which the Index Components are listed. Solactive calculates and publishes the level of the Index every 15 seconds on each Index Business Day. Trading Prices of Index Components not listed in the Index Currency are converted using the current Intercontinental Exchange (ICE) spot foreign exchange rate. Should there be no current Trading Price for an Index Component, the later of: (i) the most recent Closing Price; or (ii) the last available Trading Price for the preceding Trading Day is used in the calculation.

In addition to the intraday calculation, a closing level of the Index for each Index Business Day is also calculated and published. This closing level is based on the Closing Prices for the Index Components on the respective Exchanges on which the Index Components are listed. The Closing Prices of Index Components not listed in the Index Currency are converted using the 04:00 p.m. London time WM Fixing quoted by Reuters. If there is no 04:00 p.m. London time WM Fixing for the relevant Index Business Day, the last available 04:00 p.m. London time WM Fixing will be used for the closing level calculation.

### **Publication of Changes to the Index and to the Methodology**

The methodology of the Index is subject to regular review, at least annually. In case a need for a change to the methodology has been identified within such review (e.g. if the present methodology is based on obsolete assumptions and factors and no longer reflects the reality as accurately, reliably and appropriately as before), such change will be made in accordance with the Solactive Methodology Policy, which is incorporated by reference and available on the Solactive website:  
<https://www.solactive.com/documents/methodology-policy/>.

Such change in the methodology will be announced on the Solactive website under the Section "Announcement", which is available at <https://www.solactive.com/news/announcements/>. The date of the last amendment of this Index is contained in this rulebook.

### **Index Committee**

An oversight committee composed of staff from Solactive and its subsidiaries (the "**Index Committee**") is responsible for decisions regarding any amendments to the rules of the Index. Any such amendment, which may result in an amendment of the rulebook, must be submitted to the Index Committee for prior approval and will be made in compliance with the Methodology Policy,

which is available on the Solactive website: <https://www.solactive.com/documents/methodology-policy/>.

### **Components of the Base Index (the “Base Index Components”)**

Solactive determines the components of the Base Index (the Underlying Stocks) and their exposure to the Aging of America Theme (as defined below) on the Index Inception Date and on each Base Index Selection Day by applying the following steps. The selection of the Index Components is done by a BM25 algorithm (a best matching algorithm described below). The algorithm conducts semantic searches of the annual regulatory filings of companies with U.S. exchange-listed common equity (including American Depositary Receipts), i.e. Form 10-K, 40-F, and 20-F, filed with the U.S. Securities and Exchange Commission within the most recent 12-month period (the “SEC-Filings”).

### **Base Index Universe Requirements and Base Index Component Requirements:**

1) Identify companies relevant to the index theme.

a) Identify companies providing therapies for medical conditions disproportionately affecting seniors using the BM25 algorithm

- Data on incidence of diseases by age group is obtained from the most recent Tables of Summary Health Statistics published by the Centers for Disease Control and Prevention (CDC) available on the CDC website at <http://www.cdc.gov/>. From those diseases included in the Tables of Summary Health Statistics, the specific medical conditions that disproportionately affect seniors are determined by firstly establishing that the condition is not uncommon, namely it affects more than 1% of total US adult population (age 18+), and secondly the percentage of senior patients (age 65+) relative to all adult patients (age 18+) with the particular condition is above 30%. The data on disease incidence obtained from the latest published CDC data indicates that the conditions that disproportionately affect seniors currently are: cancer, heart disease (including hypertension and stroke), diabetes, arthritis, kidney disease, chronic obstructive pulmonary disease, hearing loss and ulcers.
- To define the universe of relevant companies for the Aging of America Theme (or the “Base Index Universe”), specific keywords associated with medical conditions disproportionately affecting seniors will be selected by Solactive. As the date hereof, the list of keywords for this category are: “Cancer”, “Oncology”, “Neoplasm”, “Heart Disease”, “Hypertension”, “Stroke”, “Cardiovascular Disease”, “Atherosclerosis”, “Arrhythmia”, “Coronary Artery Disease”, “Insulin”, “Hypoglycemia”, “Hyperglycemia”, “Osteoarthritis”, “Kidney Disease”, “Dialysis”, “Renal Disease”, “Acute Renal Failure”, “Chronic Obstructive Pulmonary Disease”, “COPD”, “Bronchitis”, “Emphysema”, “Lung Inflammation”, “Bronchodilators”, “Lung Disease”, “Chronic Obstructive Lung Disease”, “Chronic Obstructive Airway Disease”, “Hearing Loss”, “Deafness”, “Presbycusis”, “Stomach Ulcer”, “Duodenal Ulcer”, “Peptic Ulcer”, “Esophageal Ulcer”, “Gastric Ulcer”, “Structural Heart Disease”, “Hemodynamic Monitoring”, “Heart Valve Therapies”, “Vascular and Structural Heart Device”, “Cardiac Resynchronization Therapy”, “Cardioverter Defibrillator”, “Arthritis”, “Diabetes”.

b) Identify companies providing age-restricted services used by seniors using the BM25 algorithm

- In addition to the companies identified above that develop therapies for medical conditions that disproportionately affect seniors, the Base Index Universe also includes U.S. exchange-listed companies which have business operations in age-restricted services that are provided

predominantly to seniors (age 65+). These services specifically are related to Senior Housing Facilities and Medicare Insurance.

- To define the universe of relevant companies for the Aging of America Theme (or the “Base Index Universe”), specific keywords associated with age-restricted services used by seniors will be selected by Solactive. As the date hereof, the list of keywords for this category are: “Independent Living Facilities”, “Retirement Communities”, “Assisted Living”, “Senior Housing”, “Medicare”, “Medicare Supplement”. The keywords with respect to age-restricted services may be modified or updated to generally reflect the types of services described in the immediately preceding sentence.

The keywords of the Base Index are subject to a regular – at least annual – review by Solactive, to ensure that the Base Index continues to reflect its intended theme. Changes to the keywords are subject to approval by the Index Committee. During this review, data published by the Centers for Disease Control and Prevention is analyzed to keep the diseases that disproportionately affect seniors and the corresponding keywords up to date. The procedure described above will be repeated to define the diseases / conditions that disproportionately affect seniors. On this basis, the list of keywords will be revised. During this review, existing keywords can be changed, added, or removed. These regular reviews ensure that the keywords remain relevant to the index theme before each Base Index Selection Day.

The aforementioned identification of companies which are either a) providing therapies for medical conditions disproportionately affecting seniors, or which are b) providing age-restricted services used by seniors, is performed by two separate searches, *s*, using the BM25 algorithm.

All companies where a positive match with a keyword is detected are added to the Base Index Universe.

## 2) Apply stock screens

- As of the Index Inception Date or Base Index Selection Day, companies that meet any of the following conditions are screened out of the Base Index Universe to determine the Underlying Stocks:
  - Stocks having an average daily dollar volume (“ADDV”) over the most recent 30-day period of less than \$1,000,000.
    - ADDV for a stock on a given day is equal to the one-month average of such stock’s daily dollar value from such day to the day which is one month prior thereto. For each trading day during the one-month period, the daily dollar value is equal to such stock’s trading volume for such day multiplied by such stock’s last available price as of the close of trading for such day. A stock’s trading volume may be equal to zero on a trading day. Only trading days within the one-month period are used for purposes of the ADDV and the actual number of trading days varies from period to period.
  - Stocks of companies whose total market capitalization is less than \$500,000,000
    - Market capitalization for a company on a given day is the total public market value of the company's listed equity on said day, aggregated across all share classes. In the event that a Market Disruption Event (determined with respect to a stock subject to this market capitalization screen as specified in the “Market Disruption Events” section below) occurs or is continuing on such day with respect to such stock, the market capitalization will be equal to the market capitalization on the immediately prior Index Business Day on

which no Market Disruption Event occurs or is continuing with respect to such stock. (For purposes of determining whether a Market Disruption Event occurs or is continuing with respect to a stock in the context of this market capitalization screen, any references in the “Market Disruption Events” section to “Underlying Stock” shall mean any stock subject to this market capitalization stock screen.)

- Stocks having a closing price of less than \$1 at any point over the most recent thirty day period
- Stocks of companies having total revenue of less than \$25,000,000 over the last year
- Stocks that traded less than 60 days over the last three months

### 3) Apply Thomson Reuters Business Classification screen

- For each company included in the Base Index Universe, the Thomson Reuters Business Classification (TRBC) of the company is obtained. The TRBC classification structure includes four hierarchical levels: Economic Sector, Business Sector, Industry Group, and Industry. For each company in the Base Index Universe, the company is retained in the Base Index Universe only if under the TRBC classification, its Economic Sector is classified as “Healthcare” or its Business Sector is classified as “Real Estate”.

### 4) Calculate exposure to the Aging of America Theme

The following searches and rankings are conducted separately to identify (i) companies with the highest Thematic Score with respect to therapies for diseases that disproportionately affect seniors and (ii) companies with the highest Thematic Score with respect to age-restricted services provided to seniors, in each case based on the keywords associated with the relevant theme highlighted above (age-restricted therapies versus age-restricted services).

#### 1. Calculate the keyword score for the SEC-Filings.

- a. The list of keywords relevant to the Aging of America Theme is described above.
- b. Using the keywords, a search is conducted over the SEC-Filings (the SEC-Filings represent the “Search Corpus”) in order to identify companies with a positive match for one or more keywords. Specifically, the 12-month period of reference is from and including the day which is 12 months prior to the relevant Base Index Selection Day to but excluding such Base Index Selection Day.

A semantic score for the SEC-Filings is calculated as follows:

#### 1) Both the SEC-Filings and the keywords are tokenized, filtered and stemmed using the following process:

1. The SEC-Filings and keywords are tokenized using the Unicode Text Segmentation algorithm. The Unicode Text Segmentation algorithm is currently described at <http://unicode.org/reports/tr29/>. This process separates the SEC-Filings and keywords into words (“tokens”) and removes symbols and punctuation. In connection with this process, any formatting in

an SEC-Filing (e.g., bulleting, table formatting or line breaks) is removed when the search is performed.

2. Possessive endings are removed from tokens.
3. All tokens are converted to lower case.

In addition, as stated above, when the list of keywords is created and any overlap exists between keywords (but they are not identical), both keywords are included in the list.

The Index utilizes the BM25 algorithm to attempt to identify companies that are relevant to the Aging of America Theme based on whether and the extent to which a company uses one or more of the identified keywords in its SEC-Filing. By incorporating a concept of probability of relevance, the BM25 algorithm attempts to estimate how likely it is that a document is relevant to the Aging of America Theme based on calculations that take into account the frequency with which a keyword (or keywords) is used in the document, and the rareness of the keyword(s) (measured by the frequency with which the keyword(s) appears across all documents in the Search Corpus).

The BM25 algorithm generally (i) gives more importance to documents which contain a higher number of search matches, (ii) gives less importance to documents that contain keywords that are commonly used across the search corpus (based on the idea that common words are less important to the calculation of relevance) and (iii) gives less importance to the repetition of a single keyword throughout a document as compared to matches of several different keywords in a document. Balancing these competing objectives through the BM25 algorithm means that a high number of search hits alone does not necessarily translate into a high BM25 score or a high level of relevance for a document.

In order to determine the BM25 score for an SEC-Filing, an SEC-Filing Score is calculated for each keyword within the document, and the SEC-Filing's total BM25 score is the aggregate of the SEC-Filing Scores for all of the keywords in such document:

For example, the total BM25 score for the document  $D_j$  is the sum of the scores for all of the keywords, calculated as follows:

$$Score(D_j) = \sum_{i=1}^n TF(q_i, D_j) \cdot IDF(q_i)$$

Where:

- The sum  $i=1 \rightarrow n$  is over all keywords;
- $TF(q_i, D_j)$  refers to the Term Frequency calculated with respect to a keyword  $q_i$  occurring in document  $D_j$ ; and
- $IDF(q_i)$  refers to the Inverse Document Frequency calculated with respect to keyword  $q_i$ .



a. Term Frequency (TF) quantifies the number of times a keyword  $q_i$  occurs in the SEC-Filing  $D_j$ , taking into account the length of such document relative to the average length of all documents in the Search Corpus and reflecting parameters set to control the effect that (i) the number of times the keyword is used in the document and (ii) the length of the document can have on the Term Frequency score:

$$TF(q_i, D_j) = \frac{(k+1) \cdot tf(q_i, D_j)}{k \cdot (1 - b + b \cdot L(D_j)) + tf(q_i, D_j)}$$

Where:

- $tf(q_i, D_j)$  refers to the raw count of tokenized, filtered and stemmed keyword  $q_i$  in tokenized, filtered and stemmed document  $D_j$ ;
- $k$  refers to a constant equal to 1.2, which is a saturation point that controls how much of an effect each keyword hit within the document has on the  $TF(q_i, D_j)$  score (i.e., the point at which as more keyword hits occur in such document, each such instance affects the score less);
- $b$  refers to a constant equal to 0. A positive value of  $b$  limits the effect of document length on the term frequency score by penalizing documents longer in length. By setting  $b$  to zero, such potential effect is removed and, assuming identical search phrase hits, a longer document and a shorter document would receive the same score; setting  $b$  to be greater than zero would make a longer document get assigned a lower score than a shorter document (assuming the documents have identical search phrase hits); and
- $L(D_j)$  refers to the length of the document, calculated as the ratio of the token count in the document  $D_j$  to the mean token count in all documents in the Search Corpus, where the token count is taken after tokenization but before removal of stop words.

b. Inverse Document Frequency (IDF) measures the number of documents within the search corpus that contain a particular keyword  $q_i$  as compared to the total number of documents in the Search Corpus:

$$IDF(q_i) = \ln \left( 1 + \frac{\text{numDocs} - \text{docFreq}(q_i) + 0.5}{\text{docFreq}(q_i) + 0.5} \right)$$

Where:

- $\text{numDocs}$  refers to the total number of documents in the Search Corpus; and
- $\text{docFreq}(q_i)$  refers to the count of documents in which the keyword  $q_i$  appears at least once.

The Inverse Document Frequency score takes into account the rareness of a keyword based on its frequency across all documents in the Search Corpus (a rarer keyword will lead to a higher IDF score).

In general, the more words in common with the keywords an SEC-Filing has, the higher such document's BM25 score will be. However, each component of the BM25 score calculation can have a different impact on the Overall Score assigned to an SEC-Filing. The repetition of a single keyword is less important than matches of several different keywords, but more important if the document is relatively long (with respect to the average document length of the Search Corpus). While the repetition of a keywords in an SEC-Filing (i.e., a higher number of hits) will generally lead to a higher Term Frequency score as illustrated in the calculation of Term Frequency above, the calculation of the Inverse Document Frequency gives less weight to words that are common within the Search Corpus as a whole (i.e., common words are less important to the calculation of "relevance"). The varying inputs and parameters included in the BM25 score calculation prevent a high number of search hits alone necessarily leading to a high BM25 score.

2. Map each SEC-Filing and score to a single U.S. exchange-traded equity security (each a "Stock"), if possible, as of the Base Index Selection Day.

- a. SEC-Filings for the companies in the Search Corpus that have a score of zero are removed from the Search Corpus. If there is more than one SEC-Filing for a company, remove each except that which is most recent to the Base Index Selection Day.
- b. If the company does not have any U.S. exchange-listed equity securities as of the Base Index Selection Day, the company is removed from the Base Index Universe.
- c. If the company has only one U.S. exchange-traded equity security, it is selected.
- d. If the company has more than one share class of U.S. exchange-traded equity security, the security which is the company's primary U.S. listing is selected.

3. Companies included in the Base Index Universe are ranked according to their Score (resulting rank is the "Relevance Rank").

- Based upon the Relevance Rank, each company is assigned a thematic relevance score ("Thematic Score") (according to its thematic position rank), calculated as:

$$\tau_{t,s,i} = \begin{cases} 2, & i = 1 \\ \tau_{t,s,i-1} - \frac{2 - 0.5}{n - 1}, & i \in \{2, \dots, n\} \end{cases}$$

Where:

- $t$  refers to the Base Index Selection Day,
- $s$  refers to the particular search the BM25 algorithm performed in accordance to the described in Section 1) of "Components of the Base Index (the "Base Index Components")". It takes a value of either 1 or 2 for the search of the BM25

algorithm performed in Section 1a) or Section 1b), respectively, of “Components of the Base Index (the “Base Index Components””,

- $\tau_{t,s,i}$  is the Thematic Score of the  $i^{\text{th}}$  company according to its Relevance Rank (in descending order) on the Base Index Selection Day in the search  $s$  performed by the BM25 algorithm, and
  - $n$  is the number of companies identified by the BM25 algorithm on the Base Index Selection Day that meet the stock screen and Thomson Reuters Business Classification screen specified aforehand.
- Only the 500 companies with highest Relevance Rank are considered for the estimation of the Thematic Score. Out of this universe of maximum 500 companies, the ones that do not meet the stock screen and Thomson Reuters Business Classification screen specified aforehand are removed from the Base Index Universe.
  - Under this setting, the Thematic Score of the company with the highest Relevance Rank outputted by the BM25 algorithm on the Base Index Selection Day on search  $s$  would be  $\tau_{t,s,1}$ , whereas  $\tau_{t,s,n}$  is that of the company with the lowest Relevance Rank outputted by the BM25 algorithm on the Base Index Selection Day on search  $s$ . The company with the highest Relevance Rank receives the highest Thematic Score; the higher the Relevance Rank, the higher the Thematic Score.
  - In order for a company to be included in the final Base Index Universe, a determination is made as to whether the company is relevant to the Aging of America Theme by reviewing additional company information and/or third-party information in order to verify whether the company fulfills the thematic criteria of the Aging of America Theme. From these sources, it is checked whether the company offers products or services that are related to a “Senior Product” or a “Senior Service” (each a “Business Operation”). A “Senior Product” is a drug or therapy that is used to treat a medical condition that disproportionately affects seniors, as identified under “Identify companies relevant to the index theme” above. A “Senior Service” is a service provided predominantly for seniors, as identified under “Identify companies relevant to the index theme” above. Companies that are not exposed to either of these Business Operations are omitted from the Base Index Universe. For each Base Index Selection Day, the Base Index Universe is assembled by (i) identifying 50 theme-relevant companies with the highest Thematic Score based on the BM25 algorithm with respect to therapies for diseases that disproportionately affect seniors, and setting to 0 the algorithm-specific Thematic Score of the remaining companies identified by the BM25 algorithm; (ii) identifying 50 theme-relevant companies with the highest Thematic Score based on the BM25 algorithm with respect to age-restricted services provided to seniors, and setting to 0 the algorithm-specific Thematic Score of the remaining companies identified by the BM25 algorithm; and (iii) combining the two Thematic Scores for each of the 50 to 100 companies (100 less the number of companies appearing on both lists) identified in steps (i) and (ii) to calculate the Overall Thematic Score (the “Overall Score”) as follows:

$$\tau_{t,i}^* = \tau_{t,1,i} + \tau_{t,2,i}$$

If a given company  $i$  does not belong to either of the two sets of 50 companies with highest Thematic Score from each of the searches performed by the BM25 algorithm that are exposed to either of the Business Operations, then this company would get a Thematic Score ( $\tau_{t,s,i}$ ) of zero (0) for the search  $s$  performed by the BM25 algorithm. Companies with an Overall Score of 0 are excluded from the Base Index Universe.

The selection of the Underlying Stocks is fully rule-based.

## **Underlying Stock Weights, Base Index Rebalancing and Total Return Index Rebalancing**

### **Overview**

Based on each Underlying Stock's exposure to the Aging of America Theme, Solactive determines the respective target weights of the Underlying Stocks (each an "Underlying Stock Target Weight" and together the "Underlying Stock Target Weights") and the Underlying ETF (the "Underlying ETF Target Weight"), if applicable, on the Index Inception Date and on each Base Index Selection Day (in the case of the Underlying Stocks, within the maximum and minimum constraints described in the Constraints Section below) by applying the methodology. The weights of the Underlying Stocks (each an "Underlying Stock Weight" and together the "Underlying Stock Weights") and, if applicable, the weight of the Underlying ETF (the "Underlying ETF Weight") in the Base Index will then be adjusted gradually over the Base Index Rebalancing Period (in each case, prior to market open) based on the Underlying Stock Target Weights and the Underlying ETF Target Weight, if applicable, by changing the number of shares of the Underlying Stocks (with regard to any Underlying Stock, its "Underlying Stock Shares") and of the Underlying ETF (the "Underlying ETF Shares"), if applicable, that comprise the Base Index. Since the methodology relies on setting Underlying Stock Shares and Underlying ETF Shares, if applicable, price movements of the Underlying Stocks and the Underlying ETF, if applicable, are expected to result in weights that are greater or less than (but not equal to) the Underlying Stock Target Weights and Underlying ETF Target Weight, if applicable, at the end of the Base Index Rebalancing Period and thereafter.

### **The Thematically Weighted Portfolio**

On the Base Index Inception Day and each Base Index Selection Day, an adjusted market capitalization weighted portfolio (the "Thematically Weighted Portfolio") is constructed where the weight of each Underlying Stock is set as the market capitalization of the stock adjusted for its exposure to the Aging of America Theme (the "Theme Adjusted Market Capitalization") divided by the sum of Theme Adjusted Market Capitalization for all Underlying Stocks. The Theme Adjusted Market Capitalization for each Underlying Stock is given by:

$$Theme\_Adj\_Market\_Cap_{t,i} = Market\_Cap_{t,i} * \tau_{t,i}^*$$

Where:

- $\tau_{t,i}^*$  is the Overall Score explained on Section 4) of "Components of the Base Index (the "Base Index Components")" on the Base Index Selection Day or Base Index Inception Day,
- $Market\_Cap_{t,i}$  is the Market Capitalization of Underlying Stock  $i$  on the Base Index Selection Day or Base Index Inception Day, subject to adjustment in the case of a Market Disruption Event as described under "Market Disruption Events"

Where

$$Market\_Cap_{t,i} = Outstanding\_Shares_{t,i} * Close\_Price_{t,i}$$

Where

- *Outstanding\_Shares<sub>t,i</sub>* refers to the total outstanding shares of Underlying Stock *i* on the Base Index Inception Day or given Base Index Selection Day, and
- *Close\_Price<sub>t,i</sub>* refers to the closing price of Underlying Stock *i* on the Base Index Inception Day or given Base Index Selection Day.

The weight of each Underlying Stock in the Thematically Weighted Portfolio (the “Underlying Stock Initial Weight”) is then given by:

$$w_{t,i} = \frac{Theme\_Adj\_Market\_Cap_{t,i}}{\sum_{j \in m} Theme\_Adj\_Market\_Cap_{t,j}}$$

- Where *m* is the universe of stocks composing the Base Index Universe, and
- *j* is a stock belonging to the Base Index Universe *m*.

### Effect of a Market Disruption Event

In the event that a Market Disruption Event (as defined under “Market Disruption Events” below) occurs or is continuing on a Base Index Selection Day with respect to an Underlying Stock that was included in the Base Index on the Index Business Day prior to such Base Index Selection Day, the Market Capitalization of such Underlying Stock on the immediately prior Index Business Day on which no Market Disruption Event occurs or is continuing with respect to such Underlying Stock will be used to calculate the Theme Adjusted Market Capitalization with respect to such Underlying Stock.

In the event that a Market Disruption Event occurs or is continuing on a Base Index Selection Day with respect to a stock that was not included in the Base Index on the Index Business Day prior to such Base Index Selection Day, the Theme Adjusted Market Capitalization for such stock will be set to zero, and such stock will not be included in the Base Index.

### Calculation of the Underlying Stock Target Weights

The Underlying Stock Target Weight attributed to each Underlying Stock and the Underlying ETF Target Weight, if applicable, attributed to the Underlying ETF, if applicable, will be determined on each Base Index Selection Day and Base Index Inception Day (regardless of whether a Market Disruption Event occurs). The Underlying Stock Target Weight attributed to each Underlying Stock is intended to provide targeted exposure to the Aging of America Theme, subject to the investment minimum and maximum constraints, and will be equal to such Underlying Stock’s Underlying Stock Initial Weight adjusted to comply with the investment minimum and maximum weight constraints described below.

For any Underlying Stock with an Underlying Stock Initial Weight of less than 0.10%, the Underlying Stock Target Weight for such Underlying Stock will be adjusted to 0.10% prior to any additional adjustment to such Underlying Stock’s Underlying Stock Target Weight that is made to comply with the Underlying Stock maximum weight constraint of any other Underlying Stock.

The Underlying Stock Target Weight for Underlying Stock *i* must not exceed the Maximum Weight for Underlying Stock *i* (as defined below under “Constraints”), expressed as:

$$w_{t,i}^{Target} \leq w_{t,i}^{max}$$

Where:

- $w_{t,i}^{Target}$  refers to the Underlying Stock Target Weight for Underlying Stock  $i$  determined by the methodology on the given Base Index Inception Day or Base Index Selection Day, and
- $w_{t,i}^{max}$  refers to the Maximum Weight for Underlying Stock  $i$  on the given Base Index Inception Day or Base Index Selection Day.

If any Underlying Stock Initial Weight is greater than the Maximum Weight for such Underlying Stock, the Underlying Stock Target Weight for such Underlying Stock will be set to such Underlying Stock's Maximum Weight. The difference in weight between the Underlying Stock Initial Weight and the Underlying Stock Target Weight for such Underlying Stock will be proportionally redistributed to the rest of the Underlying Stock Target Weights, subject to the investment maximum weight constraints. This is an iterative process and is performed repeatedly, until no Underlying Stock Target Weight violates the investment maximum weight constraint.

The sum of the Underlying Stock Target Weights should be 1, expressed as:

$$\sum_{j \in m} w_{t,j}^{Target} = 1$$

If the sum of the Underlying Stock Target Weights is less than 1.0, the Underlying Stock Target Weight for each Underlying Stock will be calculated as described under "Short-Term Treasury Bond ETF Position" below and the Base Index will include exposure to the Underlying ETF, such that the sum of the Underlying Stock Target Weights and the Underlying ETF Target Weight equals 1.

Constraints: For each Underlying Stock in the Base Index, the constraints set a minimum weight of 0.1%. For each Underlying Stock in the Base Index, the constraints set a maximum weight (the "Maximum Weight") of the lesser of:

- 10% or
- ADDV (as defined in "Components of the Base Index (the "Base Index Components")" above, and expressed as a numerical value)  $\times 10^{-9}$ , expressed as a percentage.

Negative weights (that is, short positions) are not permitted by the methodology. The sum of the Underlying Stock Target Weights (and, in the limited circumstance described above, the Underlying ETF Target Weight) in the Base Index is always equal to 1.0.

#### Short-Term Treasury Bond ETF Position

If the sum of the Target Weights for all Underlying Stocks on the Base Index Inception Day or a given Base Index Selection Day is less than 1.0, a condition expressed as:

$$\sum_{j \in m} w_{t,j}^{Target} < 1$$

the Base Index will also include a position in the Underlying ETF, with the Underlying ETF Target Weight equal to:

$$w_{t,Base\ ETF} = 1 - \sum_{j \in m} w_{t,j}^{Target}$$

Where:

- $w_{t,Base\ ETF}$  refers to the Underlying ETF Target Weight, if applicable, on the Base Index Inception Day or given Base Index Selection Day.

The Short-Term Treasury Bond ETF Position is intended to express the notional returns accruing to a hypothetical investor from an investment in the Underlying ETF which is comprised of publicly-issued U.S. Treasury securities that have a remaining maturity of greater than one month and less than or equal to one year. As of the date hereof, the Underlying ETF trades on the NYSE Arca under the ticker symbol "SHV".

If for any reason the Underlying ETF ceases to exist, is delisted, terminated, wound up, liquidated or files for bankruptcy, is combined with another exchange traded fund that has a different investment objective, or changes its currency of denomination, then the Index Committee, in its sole discretion, can choose to replace the Underlying ETF with a successor exchange traded fund that in the determination of the Index Committee most closely replicates the Underlying ETF. Any such changes or actions taken with respect to the Underlying ETF by the Index Committee will be made in compliance with the Methodology Policy, which is available on the Solactive website: <https://www.solactive.com/documents/methodology-policy/>. Changes will be reflected in an updated version of this document.

#### Base Index Underlying Stock and Underlying ETF Weightings

On each Index Business Day  $d$  the Underlying Stock or Underlying ETF  $k$ 's Weight, if applicable, is calculated as:

$$w_{d,k} = \frac{S_{d,k} * CP_{d,k}}{\sum_{l \in o} S_{d,l} * CP_{d,l}}$$

Where:

- $o$  refers to the universe of all Underlying Stocks and the Underlying ETF, if applicable,
- $l$  is a stock or Underlying ETF, if applicable, belonging to  $o$  (the universe of all Underlying Stocks and the Underlying ETF, if applicable),
- $S_{d,k}$  is the Underlying Stock or Underlying ETF  $k$ 's Shares, if applicable, on date  $d$ , and
- $CP_{d,k}$  is the Underlying Stock or Underlying ETF  $k$ 's closing price, if applicable, on date  $d$ .

On the Base Index Inception Day,  $bd$ , Underlying Stock or Underlying ETF  $k$ 's Shares, if applicable, are calculated as:

$$S_{bd,k} = \frac{100 * w_{bd,k}^{Target}}{CP_{bd,k}}$$

On each Index Business Day that is not the Base Index Inception Day but that is a Base Index Rebalancing Day,  $r_d$ , Underlying Stock or Underlying ETF  $k$ 's Shares, if applicable, are calculated according to the following formula:

$$S_{r_d,k} = w_{r_d,k}^{Obj} * \frac{\sum_{l \in o} S_{r_d-1,l} * CP_{r_d-1,l}}{CP_{r_d-1,k}}$$

Where:

$$w_{r_d,k}^{Obj} = w_{PBR,k} + \left[ (w_{t,k}^{Target} - w_{PBR,k}) * \frac{\rho(r_d)}{P} \right]$$

Where:

- $PBR$  refers to the Index Business Day immediately preceding the first Base Index Rebalancing Day of the relevant Base Index Rebalancing Period,
- $P$  is the total number of Base Index Rebalancing Days in the relevant Base Index Rebalancing Period, and
- $\rho_{(r_d)}$  is the number of Base Index Rebalancing Days elapsed as of (and including) day  $r_d$  in the relevant Base Index Rebalancing Period.

On each Index Business Day that is not also the Base Index Inception Day but that is a Base Index Rebalancing Day, in the event that there is a Potential Adjustment Event affecting the Underlying Stock  $i$  or the Underlying ETF, if applicable, adjustments to the number of Underlying Stock Shares  $i$  or Underlying ETF Shares, if applicable, computed as described above, will be made. For details on these adjustments, please refer to Potential Adjustment Events.

On each Index Business Day  $d$  that is not also the Base Index Inception Day or a Base Index Rebalancing Day, the number of Underlying Stock Shares  $i$  and Underlying ETF Shares, if applicable, will remain unchanged from the last Base Index Rebalancing Day, subject to any Potential Adjustment Events affecting the Underlying Stock  $i$  or the Underlying ETF, if applicable. In the case of any Potential Adjustment Events affecting the Underlying Stock  $i$  or the Underlying ETF, if applicable, adjustments to the Underlying Stock Shares  $i$  or Underlying ETF Shares, if applicable, will be made. For details on these adjustments, please refer to Potential Adjustment Events.

### **Total Return Index Rebalancing and Volatility Control**

The methodology has a volatility control feature applied on any Total Return Index Rebalancing Day. This has the effect of reducing the exposure of the Total Return Index to the performance of the Base Index (and consequently the Underlying Stocks and the Underlying ETF, if applicable) by rebalancing a portion of the Base Index into the Deleverage Position if the realized volatility of the Base Index exceeds the Volatility Cap of 7% (the “Volatility Cap”) calculated during the applicable Volatility Cap Period (as described below) for any Total Return Index Rebalancing Day.

To operate the volatility control, the annualized historical realized volatility of the Base Index (the “Annualized Base Index Realized Volatility”) is calculated over the relevant Volatility Cap Period with respect to each Total Return Index Rebalancing Day. As long as with respect to any given Total Return Index Rebalancing Day such Annualized Base Index Realized Volatility is equal to or less than the Volatility Cap, the weight of the Base Index in the Total Return Index will be set to 100% on that Total Return Index Rebalancing Day. However, if with respect to any given Total Return Index Rebalancing Day such Annualized Base Index Realized Volatility exceeds the Volatility Cap, the exposure of the Total Return Index to the Base Index will be partially rebalanced into the Deleverage Position for that Total Return Index Rebalancing Day, effected through a reduction of the Base Index weight to the percentage that is equal to the Volatility Cap divided by such Annualized Base Index Realized Volatility. As a result, the respective Underlying Stock Weights and the Underlying ETF Weight, if applicable, within the Index will be ratably reduced.

With respect to any given Total Return Index Rebalancing Day, the “Volatility Cap Period” is the period from (and including) the day which is 21 Index Business Days before the given Total Return Index Rebalancing Day to (but excluding) the day that is 1 Index Business Day prior to the given Total Return Index Rebalancing Day.



### Calculation of the Annualized Base Index Realized Volatility

The Annualized Base Index Realized Volatility over the relevant Volatility Cap Period with respect to a given Total Return Index Rebalancing Day,  $tr_d$ , is calculated as according to the following formula:

$$Base\_Index\_Realized\_Volatility_{tr_d} = \sqrt{\frac{252}{N_{tr_d}} * \sum_{dp \in cp} \left[ \ln \left( \frac{B_{dp}}{B_{dp-1}} \right)^2 \right]}$$

Where:

- $Base\_Index\_Realized\_Volatility_{tr_d}$  is the Annualized Base Index Realized Volatility during the Volatility Cap Period with respect to the given Total Return Index Rebalancing Day,
- $cp$  refers the set of Index Business Days composing the relevant Volatility Cap Period,
- $dp$  is an Index Business Day belonging to the set of Index Business Days  $cp$ ,
- $N_{tr_d}$  is the actual number of Index Business Days within the relevant Volatility Cap Period, and
- $B_t$  is the Base Index Value on the date t.

### Rebalancing; Impact of Disruptions

#### Base Index Rebalancing

As described under “Calculation of the Underlying Stock Target Weights,” the Underlying Stock Target Weight attributed to each Underlying Stock and the Underlying ETF Target Weight, if applicable, attributable to the Underlying ETF, if applicable, will be determined on each Base Index Selection Day regardless of whether a Market Disruption Event (as defined under “Market Disruption Events” below) occurs.

If a Market Disruption Event affects an Underlying Stock or the Underlying ETF, if applicable, on a Base Index Rebalancing Day, Solactive shall then rebalance the Base Index for that Base Index Rebalancing Day and for every subsequent Base Index Rebalancing Day within the applicable Base Index Rebalancing Period as if (i) for each Underlying Stock or the Underlying ETF, if applicable, that had not been affected by such Market Disruption Event, the Base Index Rebalancing Day occurred on such day and (ii) for each Underlying Stock or the Underlying ETF, if applicable, that had been affected by such Market Disruption Event, the Base Index Rebalancing Day did not occur on such day (i.e., each Underlying Stock or the Underlying ETF, if applicable, that was affected by such Market Disruption Event is not further rebalanced during such Base Index Rebalancing Period).

Therefore, if an Underlying Stock or the Underlying ETF, if applicable, is affected by a Market Disruption Event on a Base Index Rebalancing Day, such Underlying Stock or the Underlying ETF, if applicable, will not be further rebalanced over the remaining Base Index Rebalancing Days in the applicable Base Index Rebalancing Period by effectively holding the Underlying Stock Shares i or Underlying ETF Shares constant over the remaining days of the Base Index Rebalancing Period. This is given as:

$$S_{r_{d,q}}^{MDE} = S_{r_{d-1,q}}^{MDE}$$

Where:

- $q$  refers to the Underlying Stock  $q$  or the Underlying ETF, if applicable, affected by a Market Disruption Event during the applicable Base Index Rebalancing Period (on or prior to Base Index Rebalancing Day  $r_d$ ), and
- $S_{r_d,q}^{MDE}$  is the Underlying Stock Shares  $q$  or Underlying ETF Shares, if applicable, affected by a Market Disruption Event during the applicable Base Index Rebalancing Period (on or prior to Base Index Rebalancing  $r_d$ ) after the close of calendar date  $r_d$ ,

The weight of such Underlying Stock or Underlying ETF, if applicable, affected by a Market Disruption Event during the applicable Base Index Rebalancing Period will then on each subsequent Base Index Rebalancing Day, be calculated as:

$$w_{r_d,q}^{MDE} = \frac{S_{r_d-1,q}^{MDE} * LTP_{r_d-1,q}}{\sum_{l \in o} S_{r_d-1,l} * CP_{r_d-1,l}}$$

Where:

- $LTP_{r_d-1,q}$  is the last available traded price of Underlying Stock or the Underlying ETF  $q$ , if applicable, affected by a Market Disruption Event during the applicable Base Index Rebalancing Period (on or prior to Base Index Rebalancing Day  $r_d$ ) after the close of calendar date  $r_d - 1$ .

If not all Underlying Stocks are affected by a Market Disruption Event, then the weight for each Underlying Stock and the Underlying ETF, if applicable, not affected by a Market Disruption Event will then be proportionally adjusted on each subsequent Base Index Rebalancing Day, and the weight will be calculated as:

$$w_{r_d,h}^{MDE} = \frac{w_{r_d,h}^{Obj}}{1 - \sum_{g \in p} w_{r_d,g}^{Obj}} * (1 - \sum_{g \in p} w_{r_d,g}^{MDE})$$

Where:

- $h$  refers to the Underlying Stock or the Underlying ETF  $h$ , if applicable, not affected by a Market Disruption Event during the applicable Base Index Rebalancing Period (on or prior to Base Index Rebalancing Day  $r_d$ ),
- $p$  refers to the universe of Underlying Stock(s) and/or the Underlying ETF, if applicable, affected by a Market Disruption Event during the applicable Base Index Rebalancing Period (on or prior to Base Index Rebalancing Day  $r_d$ ),
- $w_{r_d,h}^{MDE}$  refers to the weight for each Underlying Stock  $h$  or Underlying ETF, if applicable, on Base Index Rebalancing Day  $r_d$  in the presence of a Market Disruption Event impacting certain universe of Underlying Stocks referred to by Subscript  $p$ , and
- $w_{r_d,h}^{Obj}$  refers to the weight for each Underlying Stock or Underlying ETF  $h$ , if applicable, on Base Index Rebalancing Day  $r_d$ , calculated as though no Market Disruption Event occurred or was continuing on any Base Index Rebalancing Day in the applicable Base Index Rebalancing Period.

The Underlying Stock or Underlying ETF Shares  $h$  each Underlying Stock or Underlying ETF  $h$ , if applicable, not affected by a Market Disruption Event will then, on each subsequent Base Index Rebalancing Day, be calculated as:

$$S_{r,d,h}^{MDE} = w_{r,d,h}^{MDE} * \frac{\sum_{l \in \Omega} S_{r,d-1,l} * CP_{r,d-1,l}}{CP_{r,d-1,h}}$$

For example, on a Base Index Selection Day, a hypothetical Base Index with no minimum or maximum weight constraints and no Underlying ETF requirement consists of only four Underlying Stocks (Stock A, Stock B, Stock C and Stock D), all four of which were included in the Base Index on the Index Business Day prior to the Base Index Selection Day, at weights of 40%, 20%, 30% and 10%, respectively. For illustration purposes, the closing price for each stock is assumed to be the same at \$10 per share at the end of each day. With the assumption of the constant closing price of \$10, the Underlying Stock Shares on the Index Business Day prior to the Base Index Selection Day can be assumed to be 4, 2, 3, and 1 for Stock A, Stock B, Stock C, and Stock D, respectively. On the Base Index Selection Day, the Underlying Stock Target Weight of each Underlying Stock is determined to be equal to 20%, 50%, 10% and 20%, respectively.

If a Market Disruption Event affects Stock A on the second Base Index Rebalancing Day in the applicable Base Index Rebalancing Period, the second Base Index Rebalancing Day and all subsequent Base Index Rebalancing Days in the Base Index Rebalancing Period will be deemed to have not occurred with respect to Stock A. The Underlying Stock Shares for Stock A will be held constant at 3.6 which was the Underlying Stock Shares for Stock A at the end of the first Base Index Rebalancing Day (the last Index Business Day without a Market Disruption Event), as Stock A was rebalanced by 1/5 of the decrease on the first Base Index Rebalancing Day in the Base Index Rebalancing Period. Similarly, the Underlying Stock Shares for Stocks B, C, and D will be 2.6, 2.6 and 1.2, respectively at the end of the first Base Index Rebalancing Day.

The weight for Stock A, given the Market Disruption Event, will now be 36% for the second Base Index Rebalancing Day (compared to a weight of 32% for such day in the absence of the Market Disruption Event). The weight for Stock B, Stock C and Stock D will be calculated such that each retains a weight within the remaining weight of the Base Index not allocated to Stock A's weight that is proportional to its Underlying Stock Target Weight relative to the other Underlying Stock Target Weights. The weight in the Base Index not allocated to Stock A's weight is equal to 64%. The weight in the Base Index that was to be allocated to Stock A's weight in the absence of the Market Disruption Event was 68% for such day. Therefore, the weight for Stock B on the second Base Index Rebalancing Day will be equal to 30.12% (the product of 32%/68% times 64%), versus the weight of 32% in the absence of the Market Disruption Event for Stock B on the second Base Index Rebalancing Day) and the weight for Stock C and Stock D will be equal to 20.71% and 13.18%, respectively (versus the weights of 22% and 14%, respectively, on the second Base Index Rebalancing Day in the absence of the Market Disruption Event). Therefore, the Underlying Stock Shares for Stock A, Stock B, Stock C, and Stock D will be 3.6, 3.012, 2.071, and 1.318, respectively, for the second Base Index Rebalancing Day.

In contrast, if a Market Disruption Event does not affect Stock A during the Base Index Rebalancing Period but a Market Disruption Event affects Stock B on the third Base Index Rebalancing Day in the applicable Base Index Rebalancing Period, the third Base Index Rebalancing Day and all subsequent Base Index Rebalancing Days in the Base Index Rebalancing Period will be deemed to have not occurred with respect to Stock B. The Underlying Stock Shares for Stock B will be held at 3.2 shares for the remaining Base Index Rebalancing Days (as Stock B was rebalanced by a total of 2/5 of the increase over the first and second Base Index Rebalancing Days in the Base Index Rebalancing Period to a weight of 32%). Therefore, on the fifth and final day of the Base Index Rebalance Period, the

weights for Stock A, Stock C and Stock D will be calculated such that each retains a weight within the remaining weight of the Base Index not allocated to Stock B's weight that is proportional to its Underlying Stock Target Weight relative to the other Underlying Stock Target Weights. The weight in the Base Index not allocated to Stock B's weight is equal to 68%. Therefore, the weight for Stock A on the final day of the rebalance will be equal to 27.2% (versus the Underlying Stock Target Weight of 20%), the weight for Stock C will be equal to 13.6% (versus the Underlying Stock Target Weight of 10%) and the weight for Stock D will be equal to 27.2% (versus the Underlying Stock Target Weight of 20%). Correspondingly, the Underlying Stock Shares for Stock A, Stock B, Stock C, and Stock D will be 2.72, 3.2, 1.36, and 2.72, respectively, at the end of the Base Index Rebalancing Period (in the absence of the Market Disruption Event, the Underlying Stock Shares would have been 2, 5, 1, and 2, respectively).

#### Total Return Index Rebalancing

If a Total Return Index Rebalancing Day must be effected on an Index Business Day on which a Market Disruption Event affects an Underlying Stock or the Underlying ETF, if applicable, Solactive shall then rebalance the Index as if (i) for each Underlying Stock or the Underlying ETF, if applicable, that had not been affected by a Market Disruption Event, the Total Return Index Rebalancing Day occurred on such day and (ii) for each Underlying Stock or the Underlying ETF, if applicable, that had been affected by such Market Disruption Event, the Total Return Index Rebalancing Day did not occur on such day, provided that for the purposes of calculating the Annualized Base Index Realized Volatility the alternative calculations set forth in the next paragraph apply (i.e., other than for purposes of calculating the Annualized Base Index Realized Volatility in the manner set forth in the next paragraph, each Underlying Stock or the Underlying ETF, if applicable, that was affected by such Market Disruption Event is disregarded for purposes of Total Return Index Rebalancing).

Solely for purposes of calculating the Annualized Base Index Realized Volatility which includes an Index Business Day on which a Market Disruption Event affects an Underlying Stock or the Underlying ETF, if applicable (except if such Market Disruption Event affects all the Underlying Stocks and the Underlying ETF, if applicable), the Base Index Value will include any Underlying Stock or the Underlying ETF, if applicable, that has been affected by a Market Disruption Event and will be calculated (i) in the event of a Trading Disruption related to movements in price that exceed limits established by the relevant exchange, by assuming the closing price of the Underlying Stock or the closing price of the Underlying ETF, if applicable, is equal to such price limit on such Index Business Day or (ii) in the event of a Market Disruption Event which is not a Trading Disruption related to movements in price that exceed limits established by the relevant exchange, by multiplying the last traded price of the Underlying Stock or the Underlying ETF, if applicable, on the immediately preceding relevant Index Business Day by the percentage change (whether positive or negative) of the Underlying Stock or the Underlying ETF, if applicable, having the largest absolute total return (expressed in percentage; adjusted for dividends, splits, and spin-offs) from the immediately preceding relevant Index Business Day to the relevant Index Business Day; provided, that if a Market Disruption Event has occurred and is continuing with respect to more than one Underlying Stock on an Index Business Day, then Solactive shall consult with the Index Committee to determine the values to be used for such disrupted Underlying Stock for purposes of calculating the Annualized Base Index Realized Volatility, such determination to be made by the Index Committee in its sole discretion based on its review of such market and other information as it believes relevant to such determination.

### Calculation of the Index

The Index Value on the Index Inception Date is equal to 1000. On any given Index Business Day  $d$  following the Index Inception Date, the Index Value is calculated according to the following formula:

$$Index_d = Index_{IR_d} * \left[ \frac{TRV_d}{TRV_{IR_d}} - Interest\ Rate_{IR_d} * DCF_{IR_d,d} \right] * e^{(-Deduction\ Rate * DCF_{IR_d,d})}$$

Where:

- $IR_d$  refers to the Notional Interest Rate Reset Date immediately preceding (but not including) Index Business Day  $d$ ,
- $Index_d$  means the Index Value as of the date  $d$ ,
- $TRV_d$  means the Total Return Index Value as of the date  $d$ ,
- $Interest\ Rate_{IR_d}$  means the Notional Interest Rate as of date  $IR_d$ ,
- $Deduction\ Rate$  means 0.75% per annum,
- $DCF_{IR_d,d}$  is the day count fraction for the period from (but excluding) the date  $IR_d$  to (and including) the given Index Business Day  $d$ , determined by using the Day Count Convention (as specified in the Annex), and
- $e$  means the exponential function.

### Calculation of the Total Return Index Value

The Total Return Index Value on the Total Return Index Inception Date is set at 1000.

On any given Index Business Day  $d$  following the Total Return Index Inception Date, the Total Return Index Value is calculated according to the following formula:

$$TRV_d = TRV_{tr_d} * \left[ \frac{B_d}{B_{tr_d}} * w_{tr_d}^B + \frac{DP_d}{DP_{tr_d}} * (1 - w_{tr_d}^B) \right]$$

Where:

- $tr_d$  refers to the Total Return Index Rebalancing Day immediately preceding (but not including) Index Business Day  $d$ ,
- $TRV_{tr_d}$  means the Total Return Index Value as of the date  $tr_d$ ,
- $B_d$  means the Base Index Value as of the date  $d$ ,
- $DP_d$  means the Deleverage Position Value as of the date  $d$ , and
- $w_{tr_d}^B$  means the Base Index Weight as of date  $tr_d$  and calculated according to the following formula:

$$w_{tr_d}^B = \min \left( 100\%, \frac{VolatilityCap}{Base\_Index\_Realized\_Volatility_{tr_d}} \right)$$

Where:

- $VolatilityCap$  means the Volatility Cap (as defined under "Total Return Index Rebalancing and Volatility Control" above).

### Calculation of the Base Index Value

The Base Index Value on the Base Index Inception Date is set to 1000. On any Index Business Day  $d$  following the Base Index Inception Date, the Base Index Value is calculated according to the following formula:

$$B_d = \sum_{l \in \mathcal{O}} S_{d,l} * CP_{d,l}$$

### Calculation of the Deleverage Position Value

On any Index Business Day  $d$  following the Total Return Index Inception Date the Deleverage Position Value is equal to the Money Market Position Value (defined below) on that Index Business Day  $d$ .

### Calculation of the Money Market Position

#### Overview

The Money Market Position is intended to express the notional returns accruing to a hypothetical investor from an investment in a notional money account denominated in U.S. dollars that accrues interest at a rate determined by reference to the Notional Interest Rate (3-Month USD LIBOR, determined as specified in the Annex). The Money Market Position will have a positive notional return if the Notional Interest Rate is positive.

#### Calculation of the Money Market Position Value

The value of the Money Market Position (the “Money Market Position Value”) is equal to 100 on the Money Market Position’s Asset Inception Date. On any calendar date  $cd$  following the Money Market Position’s Asset Inception Date, the Money Market Position Value will be calculated according to the following formula:

$$MM_d = MM_{IR_d} * (1 + Interest\ Rate_{IR_d} * DCF_{IR_d,d})$$

Where:

- $MM_d$  means the Money Market Position Value as of the date  $d$ .

### Historical Data

The initial level of the Index on the 2<sup>nd</sup> of April 2015, the Inception Date, is 1000. Historical levels from the 9<sup>th</sup> of June 2020, the Live Date, will be recorded in accordance with Article 8 of the BMR. Levels of the Index published for a period between the 21<sup>st</sup> of June 2017 and the Live Date have been back-tested. Levels of the Index published for a period between the Inception Date and the 21<sup>st</sup> of June 2017 have been back-casted.

The back-casted levels of the Index are determined based on the following modifications to the index methodology:

- a) Only financial instruments that fulfill the Base Index Universe Requirements and Base Index Component Requirements on the 16<sup>th</sup> of June 2017 are eligible Base Index Components.
- b) With respect to each Selection Day in the back-cast period, eligible Index Components that were not listed on a regulated exchange in the United States or on a regulated exchange in the United States as an American Depositary Receipt (ADR) have been excluded.

The back-tested levels of the Index are based on the Base Index Universe Requirements and Base Index Component Requirements with respect to the Selection Day of each Rebalance Day in the back-test period.

### **Market Disruption Events**

A “Market Disruption Event” with respect to an Underlying Stock or the Underlying ETF will have occurred in any of the following situations (as determined by Solactive in its sole discretion): (i) the official closing price, level or other measure of any Underlying Stock or the Underlying ETF, if applicable, is unavailable on any relevant day on which such measure is scheduled to be published; (ii) a relevant Exchange is not open for trading during its regular trading session, or closes prior to its scheduled closing time, on any relevant day or there is an Exchange Disruption; (iii) upon the occurrence or existence of a Trading Disruption at the scheduled closing time of the relevant Exchange or at any time during the day which Solactive determines is material; (iv) with respect to the Underlying ETF, the net asset value per share is not calculated or is not announced by the Underlying ETF or the sponsor of the Underlying ETF, and such event has a material impact on the Index; (v) with respect to the Underlying ETF, the Underlying ETF or the sponsor of the Underlying ETF suspends creations or redemptions of shares, and such event has a material impact on the Index; (vi) upon the occurrence or existence of an Index Dislocation; or (vii) upon the occurrence or existence of a Force Majeure Event.

A “**Trading Disruption**” means any suspension of or limitation imposed on trading by the relevant Exchange or Related Exchange, and whether by reason of movements in price exceeding limits permitted by the relevant Exchange or otherwise, relating to the Underlying Stock shares, the Underlying ETF shares, the index underlying the Underlying ETF or futures or options on the Underlying Stock shares, Underlying ETF shares or the index underlying the Underlying ETF.

An “**Exchange Disruption**” means any event that disrupts or impairs (as determined by Solactive in its sole discretion) the ability of market participants in general to effect transactions in, or obtain market values for, the shares of the Underlying Stock or Underlying ETF on the relevant Exchange or futures or options on the Underlying Stock shares, Underlying ETF shares or the index underlying the Underlying ETF, in each case on the relevant Related Exchange.

“**Exchange**” means the primary exchange on which shares of an Underlying Stock or the Underlying ETF are listed.

“**Related Exchange**” means, in respect of an Underlying Stock, the Underlying ETF or the index underlying the Underlying ETF, as the case may be, the primary exchange (or exchanges) or quotation system (or quotation systems) on which futures or options contracts relating to such Underlying Stock, the Underlying ETF or the index underlying the Underlying ETF, as the case may be, are traded, if any.

An “**Index Dislocation**” means Solactive determines that a Hypothetical Investor, as a result of a market-wide condition relating to the Index or any Underlying Stock or the Underlying ETF would (i)

be unable, after using commercially reasonable efforts, to acquire, establish, re-establish, substitute, maintain, unwind, or dispose of all or a material portion of any hedge position relating to the Index, an Underlying Stock or the Underlying ETF, or (ii) incur a materially increased cost in doing so, including due to any capital requirements or other law or regulation provided that any such materially increased cost that is incurred solely due to the deterioration of the creditworthiness of the Hypothetical Investor shall not be deemed materially increased cost.

A "**Hypothetical Investor**" means a hypothetical investor located in the United States of America investing in any Underlying Stock, the Underlying ETF or financial instrument for the purpose of hedging any exposure relating to the Index.

A "**Force Majeure Event**" means Solactive determines that there has been the occurrence of a systems failure, natural or man-made disaster, act of God, armed conflict, act of terrorism, riot or labor disruption or any similar intervening circumstance that is beyond the reasonable control of the Solactive or any of their respective affiliates that Solactive determines is likely to have a material effect on an Index component, or on its ability to perform its role in respect of the Index.

On any Index Business Day on which a Market Disruption Event occurs or is continuing with respect to any non-zero weighted Underlying Stock or Underlying ETF, if applicable, included in the Index, Solactive shall postpone calculation of the Index Value to the next Index Business Day on which no Market Disruption Event occurs or is continuing with respect to any non-zero weighted Underlying Stock or Underlying ETF, if applicable, included in the Index and an indicative level for the Index will be published. Such level will be identified as a "disrupted indicative level".

Solactive shall resume calculating the Index Value on the first Index Business Day on which no Market Disruption Event is occurring or continuing with respect to any Underlying Stock or the Underlying ETF, if applicable, by using (i) for the Underlying Stock Shares of each Underlying Stock or the Underlying ETF Shares of the Underlying ETF, if applicable, that had not been affected by such Market Disruption Event, the Underlying Stock Shares and Underlying ETF Shares, if applicable, that would have been used as if the Base Index Rebalancing Day(s), if applicable, occurred on each Index Business Day on which such Market Disruption Event occurred or was continuing and the Total Return Index Rebalancing Day and subsequent Total Return Index Rebalancing Day(s) (as applicable) occurred on each Index Business Day on which such Market Disruption Event occurred or was continuing and (ii) for the Underlying Stock Shares of each Underlying Stock or the Underlying ETF Shares of the Underlying ETF, if applicable, that had been affected by such Market Disruption Event, the Underlying Stock Shares and Underlying ETF Shares, if applicable, on the Index Business Day immediately preceding the first day of such Market Disruption Event.

On the sixth Index Business Day following the occurrence of a Market Disruption Event with respect to any Underlying Stocks or the Underlying ETF, if applicable, included in the Index, if such Market Disruption Event is continuing and such Underlying Stocks or the Underlying ETF, if applicable, have not been removed from the Index, the Index Committee may determine in its sole discretion to instruct Solactive to calculate the Index, using a price for such Underlying Stocks or the Underlying ETF, if applicable, as determined by the Index Committee in its sole discretion. In the event the Index Committee determines on such sixth Business Day, in its sole discretion, that no such instructions should be given to Solactive, the Index Committee may revisit such determination on any Index Business Day thereafter on which the Market Disruption Event is continuing.



Notwithstanding the foregoing, in the event of a Force Majeure Event in which all Underlying Stocks and the Underlying ETF, if applicable, are affected, the calculation and publication of the Index will be postponed until, in the determination of Solactive, such Force Majeure Event has been resolved.

### Potential Adjustment Events

In the event that an Underlying Stock or the Underlying ETF, if applicable, is affected by a “potential adjustment event”, Solactive may make adjustments to the number of shares of such Underlying Stock or the Underlying ETF, if applicable, reflected in the Index and/or the weighting of the Underlying Stock or the Underlying ETF, if applicable, if it determines that the event could have a diluting or concentrative effect on the theoretical value of the Underlying Stock shares or the Underlying ETF shares, if applicable, and would not otherwise be accounted for in the Index. Table 1 below describes the potential adjustment events for which Solactive may make adjustments. The effective date for all adjustments will be as of the ex-date for the potential adjustment event with the exception of Ad-hoc Situations as described below.

Ad-hoc Situations are defined as circumstances, when either Solactive receives information about the effectiveness of a transaction after the last trading day of an Underlying Stock or Underlying ETF, if applicable, or the Underlying Stock or Underlying ETF, if applicable, has been suspended from trading with immediate effect and will not resume to trade until its delisting and / or has been delisted from the relevant Exchange with immediate effect. In case of Ad-hoc Situations, the adjustment will be applied with a notice period of two Index Business Days, i.e. the effective date for the adjustment will be the third Index Business Day following the announcement.

### Potential Adjustment Events:

Potential Adjustment Event	Adjustment	Adjustment Description
Cash Dividends	Yes	The Dividend is reinvested in the Underlying Stock or Underlying ETF
Special/Extraordinary Dividends	Yes	The Dividend is reinvested in the Underlying Stock or Underlying ETF
Stock Dividend	Yes	Where shareholders receive “B” new shares for every “A” share held, the number of shares is adjusted by multiplying the original number of shares by the quotient of (a) the sum of A and B divided by (b) A.
Stock Split	Yes	Where shareholders receive “B” new shares for every “A” share held, the number of shares is adjusted by multiplying the original number of shares by the quotient of B divided by A.

Stock Cash Acquisition	Yes	<p>Where company X is acquired, proceeds equal to the original number of shares of company X multiplied by the latest available price determined by Solactive are reinvested proportionally across the index. If an Ad-hoc Situation applies, then a notional position in company X, where the valuation of the notional position is exactly equal to the proceeds, will be maintained in the Base Index during the two Index Business Day notice period prior to the effective date.</p>
Stock Merger	Yes	<p>If company Y, the acquirer, is currently in the index, and irrespective of whether or not an Ad-hoc Situation applies to the adjustment event, then where shareholders receive "B" new shares of company Y for every "A" share of company X held, the shares of company X are replaced by shares of company Y where the number of shares of company Y is obtained by multiplying the original number of shares of company X by the quotient of B divided by A. If the acquirer is not a current index constituent, then the share of the acquired company will be removed from the index and the proceeds will be reinvested proportionally across the index. If an Adhoc Situation applies and the acquirer company Z is not a current index constituent, and where shareholders receive "C" shares of company Z for every "A" share of company X held, then for the two Index Business Day notice period, the shares of company X will be replaced by shares of company Z obtained by multiplying the original number of shares of company X by the quotient of C divided by A. The shares of company Z will be removed from the index on the effective date and proceeds will be</p>

		reinvested proportionally across the index.
Stock Spinoff	Yes	Where shareholders receive “B” new shares of spun-off company Y for every “A” share of parent company X held, a position in company Y is initiated where the number of shares of company Y is obtained by multiplying the original number of shares of company X by the quotient of B divided by A. If the effective date of the spinoff is a Base Index Rebalancing Day, the effective proceeds of the spinoff obtained by multiplying the original number of shares of company X by the quotient of B divided by A and that further multiplied by the latest available price of company Y determined by Solactive are reinvested in company X.
Stock Delisting	Yes	The proceeds received from the sale of the delisted securities are reinvested proportionally across the index. If an Adhoc Situation applies, then a notional cash position equal to the proceeds will be maintained in the Base Index during the two Index Business Day notice period prior to the effective date.

For potential adjustment events not listed in the table above, Solactive may make adjustments if it determines that the event could have a diluting or concentrative effect on the theoretical value of the Underlying Stock shares or the Underlying ETF shares, if applicable, and would not otherwise be accounted for in the Index. Any such adjustments are publicly announced in advance wherever practicable.

#### **Revision to Index Values in the Event of Data Error**

If Solactive determines that the price made available for an Underlying Stock or the Underlying ETF, if applicable, with a non-zero weighting in the Index (or the published level of the Notional Interest Rate) reflects a manifest error, the calculation of the Index shall be delayed until such time as a corrected price or level is made available. In the event a corrected price or level is not made available on a timely basis or in the event that the price made available for an Underlying Stock or the Underlying ETF, if applicable (or the published level of a Notional Interest Rate), is subsequently

corrected and such correction is published, then Solactive may, if practicable and if Solactive determines, acting in good faith, that such error is material, adjust or correct the relevant calculation or determination, including the price of the Underlying Stock or the Underlying ETF, if applicable, as of any Index Business Day to take into account such adjustment or correction.

On any Index Business Day during which the price for an Underlying Stock or the Underlying ETF, if applicable, reflects such an error (and such error has not been corrected), the Underlying Stock Target Weights, the Underlying ETF Target Weight, if applicable, and the Base Index Weight will be calculated using the price made available by the relevant Exchange (notwithstanding any manifest error). If Solactive determines that any such error is material (as described above) and if the relevant Exchange subsequently corrects such price it has made available, the Index Value may be calculated using such corrected price, but the quantities of the Underlying Stocks and the Underlying ETF, if applicable, implied by the Underlying Stock Target Weights and the Underlying ETF Target Weight, if applicable, and the Base Index Weight (each prior to the error being corrected) will not be adjusted.

#### **Revision to Index Values in the Event of Non - Data Error**

If there is a missed potential adjustment event (as described under “Potential Adjustment Events” above) (a “Missed Potential Adjustment Event”) or a deviation from the Index methodology as described in this document (a “Missed Index Methodology Event”), and a correction can be made within 2 days or fewer after such Missed Potential Adjustment Event or Missed Index Methodology Event, Solactive will recalculate the Index Value for the Index Business Day on which such error occurred and each following Index Business Day on which the Index Value was affected by such Missed Potential Adjustment Event or Missed Index Methodology Event, using the corrected potential adjustment event adjustment or index methodology. If such a correction occurs more than 2 days after such Missed Corporate Event or Missed Index Methodology Event, the Index will not be recalculated.

#### **Annex**

Index Inception Date	2 <sup>nd</sup> of April 2015
Total Return Index Inception Date	2 <sup>nd</sup> of April 2015
Base Index Inception Date	31 <sup>st</sup> of December 2014
Money Market Position’s Asset Inception Date	2 <sup>nd</sup> of January 2015
Live Date	9 <sup>th</sup> of June 2020
Index Bloomberg Ticker	SOLAOAER Index

Index Business Day:

Means a day on which the New York Stock Exchange is open for its regular or partial trading session.

#### Notional Interest Rate:

3-Month USD LIBOR will be the offered rate for three-month deposits in U.S. dollars, as that rate appears on Refinitiv page LIBOR01 as of 11:00 a.m., London time, as observed two London business days prior to the relevant Notional Interest Rate Reset Date. Each such date is referred to herein as a “USD LIBOR interest determination date”. “Refinitiv page LIBOR01” refers to the LIBOR01 page on the Refinitiv Eikon service, or any successor or replacement service, on the page specified above, or any successor or replacement page on that service. A “London business day” is a day on which commercial banks and foreign currency markets settle payments and are open for general business in London.

#### LIBOR Unavailability and Cessation

- (a) In the event that the 3-Month USD LIBOR does not appear on Refinitiv page LIBOR01 at approximately 11:00 a.m., London time, on any Index Business Day, then Solactive will use for the calculation of the Index the most recent available 3-Month USD LIBOR published by Refinitiv Eikon.
- (b) If Solactive determines that the 3-Month USD LIBOR (1) is no longer representative as a measure of the average rate at which banks are willing to borrow wholesale unsecured funds in the London interbank market or (2) has been discontinued at any time, it will substitute for 3-Month USD LIBOR an industry accepted substitute or successor rate (the “LIBOR Successor Rate”), including any adjustment to or related spread on such LIBOR Successor Rate, in each case in its sole discretion (as described under “Index Committee”). In the event that Solactive determines, in its sole discretion, that there is no industry-accepted substitute or successor rate and that there are no quotations provided as described in this section under (a), then, after consulting such sources as it deems reasonable, it will estimate the 3-Month USD LIBOR in its sole discretion from time to time to use as the LIBOR Successor Rate. Further, if Solactive subsequently determines, in its sole discretion, that an industry-accepted substitute or successor rate has emerged or otherwise become available, it will cease to estimate the LIBOR Successor Rate and instead substitute such industry-accepted substitute or successor rate as provided in the first sentence of this paragraph (b).

If Solactive has determined a LIBOR Successor Rate (including any such adjustment and/or spread) in accordance with the foregoing, Solactive in its sole discretion may also implement changes to the Index rules as it determines are appropriate to account for such change to the LIBOR Successor Rate in a manner that is consistent with industry-accepted practices for the LIBOR Successor Rate. Once Solactive chooses a LIBOR Successor Rate, such LIBOR Successor Rate will be used in place of 3-Month USD LIBOR for all calculations, and the term “3-Month USD LIBOR” as used in this methodology, shall be then deemed to refer to the LIBOR Successor Rate.

#### Day Count Convention:

Actual/360, meaning the number of days in the relevant period divided by 360.