

**GOLDMAN SACHS MARINER INDEX**

**METHODOLOGY**

**AUGUST 7, 2020**

## GOLDMAN SACHS MARINER INDEX

### Overview

*The following overview of the Goldman Sachs Mariner 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 Goldman Sachs Mariner Index and its operation that follows in this document (such operations, together with the algorithm used to identify the combination of permitted Underlying Equity Asset (as defined below) weights in the Equity Basket (as defined below) (the “**Equity Basket algorithm**”), the “**Methodology**”).*

*The “Certain Risk Factors and Additional Information about the Index” section at the end of the Methodology is intended to summarize certain risks associated with the Goldman Sachs Mariner Index, but does not purport to be exhaustive, nor should it be regarded as offering advice on the advisability of investing in products that may be linked to the Goldman Sachs Mariner Index or its underlying investment strategy. You should also read any relevant documentation, such as any prospectuses, term sheets or offering memoranda, which may highlight further risks particular to such products, or arising from the relationship between the terms of such products and the features of the Goldman Sachs Mariner Index. Neither Goldman Sachs International nor any of its affiliates guarantees the quality, accuracy and/or the completeness of the Goldman Sachs Mariner Index or any data included therein or on which the Goldman Sachs Mariner Index or any Underlying Asset (as defined below) is based, and neither Goldman Sachs International nor any of its affiliates shall be liable to any third party for any loss or damage, direct, indirect or consequential, arising from (i) any inaccuracy or incompleteness in, or delays, interruptions, errors or omissions in the Goldman Sachs Mariner Index or any data included therein or on which the Goldman Sachs Mariner Index is based or (ii) any decision made or action taken by any third party in reliance upon the Goldman Sachs Mariner Index or any data included therein or on which the Goldman Sachs Mariner Index is based.*

The Goldman Sachs Mariner Index (the “**Index**”) represents a notional investment in the components of various ETFs and futures contract positions, subject to certain deductions described below. The Index provides exposure to two asset classes:

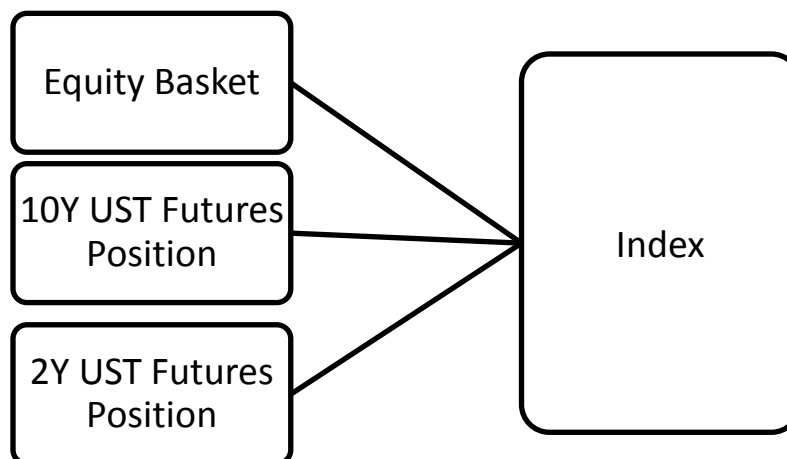
- *U.S. Equities*, through a basket of nine (9) ETFs comprised of stocks in corresponding U.S. sectors identified in the attached Annex – Overview of Underlying Assets (each, an “**Underlying Equity Asset**” or “**Underlying ETF**” and together the “**Underlying Equity Assets**” or “**Underlying ETFs**”, and such basket the “**Equity Basket**”); and
- *U.S. Government Bonds*, through two (2) futures contract positions on 10-Year and 2-Year U.S. Treasury notes (each, an “**Underlying Fixed Income Asset**” and together the “**Underlying Fixed Income Assets**”),

subject to a number of constraints, including volatility controls, minimum and maximum weights and leverage constraints, in each case as described in more detail below. The Underlying Equity Assets and Underlying Fixed Income Assets constitute the underlying assets of the Index (each an “**Underlying Asset**” and together the “**Underlying Assets**”).

#### *Excess Return and Deduction Rate*

The Index is calculated on an excess return basis by reference to a weighted combination of the excess returns of each of the Equity Basket (calculated as described under “1.6. Calculation of the Equity Basket Excess Return Value”) and Underlying Fixed Income Assets (calculated as described under “2.4. Calculation of the Fixed Income Asset Excess Return Values”). Excess returns are calculated over the return that could be earned on a notional cash deposit at the “**Notional Interest Rate**” (which is the Federal Funds Rate, as specified in the attached Annex). Therefore, the returns of the Equity Basket and the Underlying Fixed Income Assets will be reduced by an amount equal to the Federal Funds Rate. If, due to the rebalancing mechanism (as further described below), less than 100% of the weight of the Index is allocated to the Equity Basket and Underlying Fixed Income Assets, the Index will allocate exposure to a hypothetical cash position that will earn no return on an excess return basis. There is no limit on the weight of the Index that may be allocated to the hypothetical cash position. Any returns will be further reduced by the “**Deduction Rate**” of 0.50% per annum (accruing daily), which is a flat deduction regardless of the Index’s allocations. If, as a result of such deductions or otherwise, the value of the Index should fall to or below zero in respect of an Index Business Day, then the Index Value in respect of such Index Business Day and all following Index Business Days shall be zero.

The diagram below outlines how the Underlying Assets are used to determine the Index Value (as defined below). The diagram is included solely for convenience and shall not control the meaning, interpretation or operation, and does not form part, of the Methodology.



#### *Equity Basket*

At any given time, the Equity Basket tracks the weighted return of the Underlying Equity Assets. The weightings of the components of the Equity Basket are reset monthly by the Equity Basket algorithm. The Equity Basket algorithm seeks to provide exposure to a low volatility

combination of Underlying Equity Assets by seeking to identify on each Equity Basket Observation Day (as defined under “*1. Equity Basket Rebalancing and Underlying Equity Asset Weights in the Equity Basket*”) the combination of nine Underlying Equity Asset weights summing to 100% that would have provided the lowest hypothetical historical volatility (as identified by the Equity Basket algorithm, and subject to the constraints of a maximum weight of 20% and a minimum weight of zero for each Underlying Equity Asset), as described under “*1. Equity Basket Rebalancing and Underlying Equity Asset Weights in the Equity Basket*”. The Equity Basket is rebalanced over the Equity Basket Rebalancing Period (as defined under “*1. Equity Basket Rebalancing and Underlying Equity Asset Weights in the Equity Basket*”) each month. The Averaged Underlying Equity Asset Target Weight is determined by averaging three Underlying Equity Asset Target Weights as determined over three Equity Look-Back Periods of approximately one, three and six months (as described under “*1.3. Calculation of the Averaged Underlying Equity Asset Target Weights*”). The Underlying Equity Asset Target Weights for each Equity Look-Back Period must total 100% and there is no assurance that every Underlying Equity Asset will be represented in the Equity Basket in any given monthly reset with a weight greater than zero.

#### *Fixed Income Momentum Signal*

The Index combines the Equity Basket and the Underlying Fixed Income Assets based on a fixed income momentum signal and subject to embedded volatility controls. On any given Index Business Day (as defined in the attached Annex) following the Index Base Date (as defined in the attached Annex), the Index will be based on the weighted performance of (i) a target portfolio consisting of (a) the excess return of the Equity Basket and (b) the excess return of a position in rolling 2-Year U.S. Treasury Note futures contracts (the “**2Y UST Futures Position**”; such portfolio the “**Equity/2-Year Treasury Target Portfolio**”) and (ii) a target portfolio consisting of (a) the excess return of the Equity Basket and (b) the excess return of a position in rolling 10-Year U.S. Treasury Note futures contracts (the “**10Y UST Futures Position**”; such portfolio the “**Equity/10-Year Treasury Target Portfolio**” and, together with the Equity/2-Year Treasury Target Portfolio, the “**Target Portfolios**”). The weight of the Equity/10-Year Treasury Target Portfolio on any Index Business Day will be determined by the Fixed Income Momentum Signal, which is the percentage of days during the 10 Index Business Day period (i.e., 0.0, 0.1, 0.2 ... 0.9, 1.0) to and including the relevant Index Business Day for which the annualized excess return of 10Y UST Futures Position over the Fixed Income Momentum Look-Back Period of approximately twelve months (as described under “*2. Fixed Income Momentum Signal*”) is zero or positive; the weight of the Equity/2-Year Treasury Target Portfolio is the percentage of days during the 10 Index Business Day period to and including the relevant Index Business Day for which the annualized excess return of the 10Y UST Futures Position over the Fixed Income Momentum Look-Back Period of approximately twelve months is negative. If the Fixed Income Momentum Signal is 1.0 then the Index will reflect only the Equity/10-Year Treasury Target Portfolio and if it is 0.0 the Index will reflect only the Equity/2-Year Treasury Target Portfolio with varying combinations of the Equity/10-Year Treasury Target Portfolio and Equity/2-Year Treasury Target Portfolio as the Fixed Income Momentum Signal varies from 0.0 to 1.0. Each of the Underlying Fixed Income Assets represents a synthetic exposure to the total return (including income from interest) of the U.S. Treasury futures contracts (as described under “*5. Calculation of the Underlying Asset Values*”).

### *Rebalancing Mechanism*

Each Target Portfolio may be partially invested in the Equity Basket and the applicable Underlying Fixed Income Asset as a result of the Index's portfolio rebalancing and volatility control mechanisms. Each Target Portfolio assigns weights to the Equity Basket and the relevant Underlying Fixed Income Asset based on the two-day average (as described under "3.3. Calculation of the Averaged Equity Basket Target Weight and Averaged Fixed Income Asset Target Weight in the Target Portfolio") of the target weights of an Interim Basket (as defined below) reflecting a lower allocation to the Equity Basket, as selected on each averaging day from between two Interim Baskets (as described under "3.2. Calculation of the Equity Basket Target Weight and Fixed Income Asset Target Weight in the Target Portfolio") reflecting different allocations between the Equity Basket and the relevant Underlying Fixed Income Asset, one using a short-term "decay factor" of 0.94 giving relatively greater weight to more recent volatilities (the "**Short-term Interim Basket**") and the other using a long-term "decay factor" of 0.97 giving relatively greater weight to older volatilities (the "**Long-term Interim Basket**" and, together with the Short-Term Interim Baskets, the "**Interim Baskets**"). Each Interim Basket generally seeks to identify the allocation between the Equity Basket and the relevant Underlying Fixed Income Asset with the highest weighted historical volatility (using the applicable "decay factor" and without taking the covariance between the Equity Basket and the applicable Underlying Fixed Income Asset into account) from among the possible combinations with a combined historical volatility (using the applicable "decay factor" and taking the covariance of the Equity Basket and the applicable Underlying Fixed Income Asset into account) equal to the Volatility Target of 5% (the volatility control feature), subject to certain constraints on leverage and weighting and as further described in the Methodology (as described under "3. Portfolio Rebalancing and Volatility Control Feature").

The volatility control feature applied to the Interim Baskets (and consequently the Target Portfolios) on each Index Business Day has the effect of changing the exposure of the Target Portfolios to the performance of the Equity Basket and the relevant Underlying Fixed Income Assets (and consequently the Underlying Assets) if the historical realized volatilities and covariance of the Equity Basket and the relevant Underlying Fixed Income Asset change on any Index Business Day.

### *Index Value*

The Index Value is calculated on each Index Business Day by reference to the weighted performance (after rebalancing) of the Equity Basket and the Underlying Fixed Income Assets (as described under "4. Calculation of the Index Value" below). The Index Value is calculated by reference to the weighted excess returns of the Equity Basket Value and Underlying Asset Values of the Underlying Fixed Income Assets, in each case over the return that could be earned on a notional cash deposit at the Notional Interest Rate (which is the Federal Funds Rate, as specified in the attached Annex) (as described in more detail under "1.6. Calculation of the Equity Basket Excess Return Value" and "2.4. Calculation of the Fixed Income Asset Excess Return Values" below). The Index is further reduced by the Deduction Rate of 0.50% per annum (accruing daily). For the avoidance of doubt, if the aggregate weight of the Equity Basket and Underlying Fixed Income Assets is less than 100%, the Index will allocate exposure to a

hypothetical cash position that will earn no return on an excess return basis. There is no limit on the weight of the Index that may be allocated to the hypothetical cash position.

The Index Value will be published to the number of significant figures equal to the Index Value Publication Precision specified in the attached Annex.

Goldman Sachs International (the “**Index Sponsor**”) has retained Solactive AG to serve as “**Calculation Agent**” for the Index. In the event that the Index Sponsor appoints a replacement Calculation Agent, a public announcement will be made via press release.

Unless otherwise indicated, any public announcement contemplated by this Methodology shall be made on the website of the Calculation Agent.

### **Certain Risk Factors and Additional Information about the Index**

Anyone considering an investment in products referencing the Index should read the appendix to the Methodology entitled “*Certain Risk Factors and Additional Information about the Index.*” Neither the Index Sponsor nor any of its affiliates makes any representation or warranty, express or implied, or accepts any liability or responsibility to the owner of any products referencing the Index or any member of the public regarding (i) the advisability of investing in securities generally, in the Index, the Target Portfolios, the Interim Baskets, the Equity Basket, or the Underlying Assets or (ii) the ability of the Index to generate positive results. If you consider acquiring any product referencing the Index you should consult your own accounting, tax, investment and legal advisors before doing so.

## **The Methodology**

### **Publication of the Index**

Solactive AG, as Calculation Agent, calculates and publishes the value of the Index on each Index Business Day and publishes it on both Bloomberg and Thomson Reuters. The relevant tickers are specified in the attached Annex.

Neither Goldman Sachs International nor any of its affiliates (individually and collectively, “**Goldman Sachs**”) makes any representation or warranty, express or implied, regarding the advisability of investing in products that may be linked to the Index or the investment strategy underlying the Index, particularly, the ability of the Index to perform as intended, the merit (if any) of obtaining exposure to the Index, or the suitability of purchasing or holding interests in any product linked to the Index. Goldman Sachs does not have any obligation to take the needs of the holders of products linked to the Index into consideration in determining, composing, exercising discretion or calculating the Index. GOLDMAN SACHS DOES NOT GUARANTEE THE ACCURACY AND/OR COMPLETENESS OF THE INDEX OR OF THE METHODOLOGY UNDERLYING THE INDEX, THE CALCULATION OF THE INDEX OR ANY DATA SUPPLIED BY IT FOR USE IN CONNECTION WITH ANY PRODUCT LINKED TO THE INDEX. GOLDMAN SACHS EXPRESSLY DISCLAIMS ALL LIABILITY FOR ANY SPECIAL, PUNITIVE, INDIRECT OR CONSEQUENTIAL DAMAGE EVEN IF NOTIFIED OF THE POSSIBILITY OF SUCH DAMAGES.

## **Index Committee**

An Index Committee is responsible for overseeing the Index and the Methodology, while the Calculation Agent is responsible for the day-to-day implementation of the Methodology, for the calculation of the Index, including responding to Market Disruption Events (as defined under “*Market Disruption Events*” below) and potential adjustment events, and for publication of the Index values and the Methodology. The Index Committee is comprised (as of the date hereof) of employees of The Goldman Sachs Group, Inc. or one or more of its affiliates. At least 40 percent of the committee is comprised of employees of non-revenue generating functions (such employees being “control side” employees). Other members consist of employees of The Goldman Sachs Group, Inc.’s securities division, which includes employees who regularly trade the Underlying Assets. If the Index Committee exercises any discretion related to the Index, as described in this Methodology, it must be approved by 100% of the control side employees present at the relevant Index Committee meeting.

The Index Committee may exercise limited discretion in respect of the Index, as contemplated by the Methodology, including in the situations described under “*Changes to the Index Constituents*” and “*Publication of Changes to the Index and to the Methodology.*” Subject to the exceptions described under “*Publication of Changes to the Index and to the Methodology,*” any such changes or actions are publicly announced as promptly as is reasonably practicable and normally at least 60 Index Business Days prior to their effective date. The Calculation Agent may from time to time consult the Index Committee on matters of interpretation in respect of the Methodology.

Because the Index Committee considers information about changes to the Index and related matters that may be potentially market moving and material, all Index Committee discussions, including those with the Calculation Agent, are confidential. The Index Committee will determine the successor of any of its members.

## 1. Equity Basket Rebalancing and Underlying Equity Asset Weights in the Equity Basket

The relevant target weights of the Underlying Equity Assets in the Equity Basket (each, an “**Underlying Equity Asset Target Weight**” and together the “**Underlying Equity Asset Target Weights**”) are determined on the first Equity Basket Business Day (as defined in the attached Annex) of each calendar month (the “**Equity Basket Observation Day**”), subject to the investment constraints described in the “*Equity Basket Constraints Schedule*” section in the attached Annex and below, by applying the Equity Basket algorithm.

The weights of the Underlying Equity Assets in the Equity Basket (each an “**Underlying Equity Asset Weight**” and together the “**Underlying Equity Asset Weights**”) will then be adjusted gradually over the Equity Basket Rebalancing Period (as defined below) such that the weight of each Underlying Equity Asset is equal to the Averaged Underlying Equity Asset Target Weights at the end of the Equity Basket Rebalancing Period. The “**Equity Basket Rebalancing Period**” is the first ten (10) Equity Basket Business Days of each calendar month (each such day an “**Equity Basket Rebalancing Day**”). The determination of each Underlying Equity Asset Weight on each Equity Basket Rebalancing Day is calculated as a combination of the Underlying Equity Asset Weight on the preceding Equity Basket Rebalancing Day and the Averaged Underlying Equity Asset Target Weight on the relevant Equity Basket Observation Day (as detailed in the “*1.4. Calculation of the Underlying Equity Asset Weights*”), which itself is determined as the average of the three Underlying Equity Asset Target Weights over each of the three Equity Look-Back Periods.

### *1.1. Calculation of the Underlying Equity Asset Target Weights within the Equity Basket*

The target weight assigned to each Underlying Equity Asset in the Equity Basket pursuant to the Equity Basket algorithm on each Equity Basket Observation Day is intended to minimize the hypothetical historical volatility of the combination of Underlying Equity Assets based on an algorithmic analysis of the historical volatility and covariance of the Underlying Equity Assets, subject to the investment constraints included as inputs in the Equity Basket algorithm.

For each Equity Look-Back Period, the Equity Basket algorithm seeks to identify — out of all the combinations of admissible Underlying Equity Asset Target Weights within the set of investment constraints described below — the combination with the lowest Annualized Underlying Equity Asset Combination Realized Volatility (as defined under “*1.2. Calculation of the Annualized Underlying Equity Asset Combination Realized Volatility*”).

The Averaged Underlying Equity Asset Target Weight for an Underlying Equity Asset will be equal to the average of the hypothetical target weights for that Underlying Equity Asset determined in respect of each Equity Look-Back Period (with rounding effects treated as described below under “*Rounding Convention*”). For the avoidance of doubt, rounding will be applied only when calculating the Averaged Underlying Equity Asset Target Weight, but not at the level of each individual Equity Look-Back Period.

The “**Equity Look-Back Period**” on any given Equity Basket Observation Day is the period from (and excluding) the day which falls six (6), three (3) or one (1) calendar month(s), as applicable, before the Equity Basket Business Day immediately preceding the given Equity Basket Observation Day (or, if any such date is not an Equity Basket Business Day, the Equity



Basket Business Day immediately preceding such day) to (and including) the Equity Basket Business Day immediately preceding the given Equity Basket Observation Day.

The Equity Basket algorithm is subject to the following constraints in seeking to identify the Underlying Equity Asset Target Weights:

Investment Constraints:

- (i) The sum of the Underlying Equity Asset Target Weights across all the Underlying Equity Assets in the Equity Basket must be equal to 100%.
- (ii) The investment constraints set a minimum weight of 0% for each of the nine (9) Underlying Equity Assets, as well as a maximum weight of 20% for each of the aforementioned Underlying Equity Assets. For the avoidance of doubt, negative weights (that is, short positions) are not permitted by the Methodology. The “*Equity Basket Constraints Schedule*” in the attached Annex sets forth the maximum weight per Underlying Equity Asset in the Equity Basket (the “**Underlying Equity Asset Maximum Weight**”) and the minimum weight per Underlying Equity Asset in the Equity Basket (the “**Underlying Equity Asset Minimum Weight**”).

Realized volatility is a historical calculation of the degree of movement based on prices or values of an asset observed periodically in the market over a specified period.

*1.2. Calculation of the Annualized Underlying Equity Asset Combination Realized Volatility*

The “**Annualized Underlying Equity Asset Combination Realized Volatility**”, during the relevant Equity Look-Back Period<sub>(l)</sub>, of each admissible combination of Underlying Equity Asset Target Weights, in respect of any Equity Basket Observation Day<sub>(EBOt)</sub>, is calculated according to the following formula:

$$AUEACRV_{EBOt,l} = \sqrt{\sum_{i,j=1}^n a_i \times a_j \times \text{UnderlyingEquityAssetCovariance}_{i,j,EBOt,l}}$$

Where:

*Subscript (i)* refers to the relevant Underlying Equity Asset<sub>(i)</sub>;

*Subscript (j)* refers to the relevant Underlying Equity Asset<sub>(j)</sub>;

*Subscript (EBOt)* refers to the relevant Equity Basket Observation Day;

*Subscript (l)* refers to the relevant Equity Look-Back Period;

*n* is the number of Underlying Equity Assets (9);

*AUEACRV<sub>EBOt,l</sub>* is the Annualized Underlying Equity Asset Combination Realized Volatility during the relevant Equity Look-Back Period<sub>(l)</sub> on date<sub>(EBOt)</sub>;

$a_i$  is the Underlying Equity Asset Target Weight<sub>(i)</sub> in the given combination of Underlying Equity Asset Target Weights;

$a_j$  is the Underlying Equity Asset Target Weight<sub>(j)</sub> in the given combination of Underlying Equity Asset Target Weights; and

*UnderlyingEquityAssetCovariance* <sub>$i,j,EBOt,l$</sub>  is the Annualized Underlying Equity Asset Covariance between Underlying Equity Asset<sub>(i)</sub> and Underlying Equity Asset<sub>(j)</sub> during the relevant Equity Look-Back Period<sub>(l)</sub> with respect to the relevant Equity Basket Observation Day<sub>(EBOt)</sub>, and is calculated according to the following formula:

$$\text{UnderlyingEquityAssetCovariance}_{i,j,EBOt,l} = \frac{252}{N_{EBOt,l}} \times \sum_s \left[ \ln \left( \frac{A_{i,s}^{EQ}}{A_{i,s-1}^{EQ}} \right) \times \ln \left( \frac{A_{j,s}^{EQ}}{A_{j,s-1}^{EQ}} \right) \right]$$

Where:

*Subscript* <sub>(i)</sub> refers to the relevant Underlying Equity Asset<sub>(i)</sub>;

*Subscript* <sub>(j)</sub> refers to the relevant Underlying Equity Asset<sub>(j)</sub>;

*Subscript* <sub>(s)</sub> refers to each Equity Basket Business Day within the relevant Equity Look-Back Period<sub>(l)</sub>;

*Subscript* <sub>(EBOt)</sub> refers to the relevant Equity Basket Observation Day;

*Subscript* <sub>(l)</sub> refers to the relevant Equity Look-Back Period;

$N_{EBOt,l}$  is the actual number of Equity Basket Business Days within the relevant Equity Look-Back Period<sub>(l)</sub>;

$A_{i,s}^{EQ}$  is the Underlying Asset Value<sub>(i)</sub> of Underlying Equity Asset<sub>(i)</sub> on Equity Basket Business Day<sub>(s)</sub>;

$A_{i,s-1}^{EQ}$  is the Underlying Asset Value<sub>(i)</sub> of Underlying Equity Asset<sub>(i)</sub> on the Equity Basket Business Day immediately preceding Equity Basket Business Day<sub>(s)</sub>;

$A_{j,s}^{EQ}$  is the Underlying Asset Value<sub>(j)</sub> of Underlying Equity Asset<sub>(j)</sub> on Equity Basket Business Day<sub>(s)</sub>; and

$A_{j,s-1}^{EQ}$  is the Underlying Asset Value<sub>(j)</sub> of Underlying Equity Asset<sub>(j)</sub> on the Equity Basket Business Day immediately preceding Equity Basket Business Day<sub>(s)</sub>.

### 1.3. Calculation of the Averaged Underlying Equity Asset Target Weights

On each Equity Basket Observation Day, the Averaged Underlying Equity Asset Target Weight<sub>(i)</sub> of an Underlying Equity Asset<sub>(i)</sub> is calculated according to the following formula:

$$w_{i,EBOt}^{EQ,Averaged\ Target} = \frac{1}{3} \times \sum_{l=1}^3 w_{i,EBOt,l}^{EQ,Target}$$

Where:

*Subscript* <sub>(i)</sub> refers to the relevant Underlying Equity Asset<sub>(i)</sub>;

*Subscript* <sub>(EBOt)</sub> refers to the relevant Equity Basket Observation Day;

*Subscript (l)* refers to the relevant Equity Look-Back Period;

$w_{i,EBOt}^{EQ,Averaged\ Target}$  is the Averaged Underlying Equity Asset Target Weight<sub>(i)</sub> on the Equity Basket Observation Day<sub>(EBOt)</sub> (with rounding effects treated as described below under “Rounding Convention”); and

$w_{i,EBOt,l}^{EQ,Target}$  is the Underlying Equity Asset Target Weight<sub>(i)</sub> for the Equity Look-Back Period<sub>(l)</sub> on the Equity Basket Observation Day as determined by the Equity Basket algorithm.

Rounding Convention: The Averaged Underlying Equity Asset Target Weights computed on each Equity Basket Business Day is rounded to the nearest three decimal places with 0.05% (0.0005) being rounded upward. For example, if the Averaged Underlying Equity Asset Target Weights is 12.36% (0.1236), it would be rounded up to 12.4% (0.124). The effect of rounding is that the sum of the rounded weights may not add up to 100%. For this reason, on each Equity Basket Observation Day, the sum of the rounded Averaged Underlying Equity Asset Target Weights is deducted from 100%. If the resulting excess weight is positive, it is added to the Underlying Equity Asset with the lowest average historical volatility over the three Equity Look-Back Periods for that Equity Basket Observation Day regardless of whether this might cause the Averaged Underlying Equity Asset Target Weight to exceed any of the constraints specified above. If the resulting excess weight is negative, its absolute value is subtracted from Averaged Underlying Equity Asset Target Weight of the Underlying Equity Asset that had the highest average historical volatility over the three Equity Look-Back Periods for that Equity Basket Observation Day and an Averaged Underlying Equity Asset Target Weights higher than the absolute value of the excess amount being deducted regardless of whether this might cause the Averaged Underlying Equity Asset Target Weight to exceed any of the constraints specified above. For the avoidance of doubt, for Rounding Convention, historical volatility of each Underlying Equity Asset in respect of each Look-Back Period is calculated based on the formula of Annualized Underlying Equity Asset Covariance above by setting i equal to j.

#### 1.4. Calculation of the Underlying Equity Asset Weights

Over the Equity Basket Rebalancing Period, the Underlying Equity Asset Weight<sub>(i)</sub> attributed to each Underlying Equity Asset<sub>(i)</sub> in respect of each Equity Basket Rebalancing Day<sub>(t)</sub> is calculated according to the following formula:

$$w_{i,t}^{EQ} = w_{i,EBRt}^{EQ} + \frac{w_{i,EBOt}^{EQ,Averaged\ Target} - w_{i,EBRt}^{EQ}}{p}$$

Where:

*Subscript (t)* refers to the relevant Equity Basket Rebalancing Day<sub>(t)</sub>;

*Subscript (EBRt)* refers to the Equity Basket Rebalancing Day immediately preceding (but not including) Equity Basket Rebalancing Day<sub>(t)</sub>;

$w_{i,t}^{EQ}$  is the Underlying Equity Asset Weight<sub>(i)</sub> as of date<sub>(t)</sub>;

$w_{i,EBRt}^{EQ}$  is the Underlying Equity Asset Weight<sub>(i)</sub> as of date<sub>(EBRt)</sub> (for the avoidance of doubt, the value is initialized to  $w_{i,EB0t}^{EQ,Averaged\ Target}$  (as defined below) for date<sub>(EBRt)</sub> prior to the Equity Basket Base Date (as defined in the Annex));

$w_{i,EB0t}^{EQ,Averaged\ Target}$  is the Averaged Underlying Equity Asset Target Weight<sub>(i)</sub> that was determined on the Equity Basket Observation Day on or immediately preceding Basket Rebalancing Day<sub>(t)</sub>; and

$p$  is the number of remaining Equity Basket Rebalancing Days (and including such Basket Rebalancing Day<sub>(t)</sub>) in the related Equity Basket Rebalancing Period.

### 1.5. Calculation of the Equity Basket Value

The Equity Basket Value on the Equity Basket Base Date (as defined in the Annex) is equal to 100. On any given Equity Basket Business Day<sub>(t)</sub> following the Equity Basket Base Date, the Equity Basket Value is calculated according to the following formula:

$$EQBV_t = EQBV_{EBRt} \times \left[ 1 + \sum_{i=1}^n w_{i,EBRt}^{EQ} \times \left( \frac{A_{i,t}^{EQ}}{A_{i,EBRt}^{EQ}} - 1 \right) \right]$$

Where:

*Subscript* <sub>(t)</sub> refers to the given Equity Basket Business Day<sub>(t)</sub>;

*Subscript* <sub>(EBRt)</sub> refers to the Equity Basket Rebalancing Day immediately preceding (but not including) Equity Basket Business Day<sub>(t)</sub>;

$n$  is the number of Underlying Equity Assets (9);

$EQBV_t$  means the Equity Basket Value as of date<sub>(t)</sub>;

$EQBV_{EBRt}$  means the Equity Basket Value as of date<sub>(EBRt)</sub>;

$w_{i,EBRt}^{EQ}$  is the Underlying Equity Asset Weight<sub>(i)</sub> of Underlying Equity Asset<sub>(i)</sub> as of date<sub>(EBRt)</sub>;

$A_{i,t}^{EQ}$  means the Underlying Asset Value<sub>(i)</sub> of Underlying Equity Asset<sub>(i)</sub> as of date<sub>(t)</sub>; and

$A_{i,EBRt}^{EQ}$  means the Underlying Asset Value<sub>(i)</sub> of Underlying Equity Asset<sub>(i)</sub> as of date<sub>(EBRt)</sub>.

### 1.6. Calculation of the Equity Basket Excess Return Value

The Equity Basket Excess Return Value on the Equity Basket Base Date (as defined in the Annex) is equal to 100. On any given Equity Basket Business Day<sub>(t)</sub> following the Equity Basket Base Date, the Equity Basket Excess Return Value is calculated according to the following formula:

$$EQBERV_t = EQBERV_{t-1} \times \left[ \frac{EQBV_t}{EQBV_{t-1}} - Interest\_Rate_{t-1} \times DCF_{t-1,t} \right]$$

Where:

*Subscript* <sub>(t)</sub> refers to the given Equity Basket Business Day<sub>(t)</sub>;

*Subscript*  $_{(t-1)}$  refers to the Equity Basket Business Day immediately preceding (but not including) Equity Basket Business Day $_{(t)}$ ;  
*EQBERV* $_t$  means the Equity Basket Excess Return Value as of date $_{(t)}$ ;  
*EQBERV* $_{t-1}$  means the Equity Basket Excess Return Value as of date $_{(t-1)}$ ;  
*EQBV* $_t$  means the Equity Basket Value as of date $_{(t)}$ ;  
*EQBV* $_{t-1}$  means the Equity Basket Value as of date $_{(t-1)}$ ;  
*Interest\_Rate* $_{t-1}$  means the Notional Interest Rate as of date $_{(t-1)}$ ; and  
*DCF* $_{t-1,t}$  is the day count fraction for the period from (but excluding) date $_{(t-1)}$  to (and including) the given Equity Basket Business Day $_{(t)}$ , determined by using the Day Count Convention (as specified in the Annex).

## 2. Fixed Income Momentum Signal

The Fixed Income Momentum Signal is determined on each Index Business Day based on excess returns of the 10Y UST Futures Position. The Fixed Income Momentum Signal is intended to select the target Underlying Fixed Income Asset and to determine the exposures to the Target Portfolios with different Underlying Fixed Income Assets (i.e., the Equity/2-Year Treasury Target Portfolio and the Equity/10-Year Treasury Target Portfolio, as described under “3. Portfolio Rebalancing and Volatility Control Feature”). It is determined as the average of Fixed Income Momentum Target Signals over the Fixed Income Momentum Averaging Period, which are calculated based on the excess returns of the 10Y UST Futures Position over the Fixed Income Momentum Look-Back Period as described below.

### 2.1. Calculation of the Fixed Income Momentum Signal

On each Index Business Day, the Fixed Income Momentum Signal is calculated according to the following formula:

$$FixedIncomeMomentumSignal_t = \frac{1}{10} \times \sum_s FixedIncomeMomentumTargetSignal_s$$

Where:

*Subscript*  $_{(t)}$  refers to the given Index Business Day $_{(t)}$ ;

*Subscript*  $_{(s)}$  refers to each Index Business Day within the Fixed Income Momentum Averaging Period;

*FixedIncomeMomentumSignal* $_t$  is the Fixed Income Momentum Signal as of date $_{(t)}$ ;

*FixedIncomeMomentumTargetSignal* $_s$  is the Fixed Income Momentum Target Signal as of date $_{(s)}$ ; and

The “**Fixed Income Momentum Averaging Period**” on any given Index Business Day is the period from (but excluding) the day which is 10 Index Business Days prior to the given Index Business Day to (and including) the given Index Business Day.

### 2.2. Calculation of the Fixed Income Momentum Target Signal

On each Index Business Day, the Fixed Income Momentum Target Signal is calculated according to the following formula:

- (a) If  $10Y\_UST\_Excess\_Ret_t \geq 0$ , then  $FixedIncomeMomentumTargetSignal_t = 1$   
 (b) If  $10Y\_UST\_Excess\_Ret_t < 0$ , then  $FixedIncomeMomentumTargetSignal_t = 0$

Where:

$Subscript_{(t)}$  refers to the given Index Business Day $_{(t)}$ ;

$10Y\_UST\_Excess\_Ret_t$  is the Annualized Excess Return of the 10Y UST Futures Position over the Fixed Income Momentum Look-Back Period (as specified below) as of date $_{(t)}$ ; and

$FixedIncomeMomentumTargetSignal_t$  is the Fixed Income Momentum Target Signal as of date $_{(t)}$ .

### 2.3. Calculation of the Annualized Excess Return of the 10Y UST Futures Position over the Fixed Income Momentum Look-Back Period

The Annualized Excess Return of the 10Y UST Futures Position over the Fixed Income Momentum Look-Back Period as of Index Business Day $_{(t)}$ , is calculated according to the following formula:

$$10Y\_UST\_Excess\_Ret_t = \frac{252}{N_t} \times \sum_s \ln \left( \frac{FIAERV_{10Y,s}}{FIAERV_{10Y,s-1}} \right)$$

Where:

$Subscript_{(t)}$  refers to the given Index Business Day $_{(t)}$ ;

$Subscript_{(s)}$  refers to each Index Business Day within the Fixed Income Momentum Look-Back Period;

$Subscript_{(s-1)}$  refers to the Index Business Day immediately preceding (but not including) Index Business Day $_{(s)}$ ;

$N_t$  is the actual number of Index Business Days within the Fixed Income Momentum Look-Back Period;

$FIAERV_{10Y,s}$  is the Fixed Income Asset Excess Return Value of the 10Y UST Futures Position on Index Business Day $_{(s)}$ ;

$FIAERV_{10Y,s-1}$  is the Fixed Income Asset Excess Return Value of the 10Y UST Futures Position on Index Business Day $_{(s-1)}$ ; and

The “**Fixed Income Momentum Look-Back Period**” on any given Index Business Day is the period from (and excluding) the day which falls twelve (12) calendar months before the Index Business Day immediately preceding the given Index Business Day (or, if any such date is not an Index Business Day, the Index Business Day immediately preceding such day) to (and including) the Index Business Day immediately preceding the given Index Business Day.

### 2.4. Calculation of the Fixed Income Asset Excess Return Values

In respect of an Underlying Fixed Income Asset $_{(m)}$ , the Fixed Income Asset Excess Return Value $_{(m)}$  on the Fixed Income Asset Base Date (as defined in the Annex) is equal to 100. On any given Asset Business Day $_{(t)}$  following the Fixed Income Asset Base Date, the Fixed Income Asset Excess Return Value $_{(m)}$  of an Underlying Fixed Income Asset $_{(m)}$  is calculated according to the following formula:

$$FIAERV_{m,t} = FIAERV_{m,t-1} \times \left[ \frac{A_{m,t}^{FI}}{A_{m,t-1}^{FI}} - Interest\_Rate_{t-1} \times DCF_{t-1,t} \right]$$

Where:

*Subscript* <sub>(t)</sub> refers to the given Asset Business Day<sub>(t)</sub>;

*Subscript* <sub>(t-1)</sub> refers to the Asset Business Day immediately preceding (but not including) Asset Business Day<sub>(t)</sub>;

*Subscript* <sub>(m)</sub> refers to the relevant Underlying Fixed Income Asset, with *m = 10Y meaning the 10Y UST Futures Position, and m = 2Y meaning the 2Y UST Futures Position*;

*FIAERV* <sub>m,t</sub> means the Fixed Income Asset Excess Return Value of Underlying Fixed Income Asset<sub>(m)</sub> as of date<sub>(t)</sub>;

*FIAERV* <sub>m,t-1</sub> means the Fixed Income Asset Excess Return Value of Underlying Fixed Income Asset<sub>(m)</sub> as of date<sub>(t-1)</sub>;

*A* <sub>m,t</sub><sup>FI</sup> means the Underlying Asset Value<sub>(m)</sub> of Underlying Fixed Income Asset<sub>(m)</sub> as of date<sub>(t)</sub>;

*A* <sub>m,t-1</sub><sup>FI</sup> means the Underlying Asset Value<sub>(m)</sub> of Underlying Fixed Income Asset<sub>(m)</sub> as of date<sub>(t-1)</sub>;

*Interest\_Rate* <sub>t-1</sub> means the Notional Interest Rate as of date<sub>(t-1)</sub>; and

*DCF* <sub>t-1,t</sub> is the day count fraction for the period from (but excluding) date<sub>(t-1)</sub> to (and including) the given Index Business Day<sub>(t)</sub>, determined by using the Day Count Convention (as specified in the Annex).

### 3. Portfolio Rebalancing and Volatility Control Feature

The Methodology determines the Target Portfolios associated with each Underlying Fixed Income Asset (i.e, the Equity/2-Year Treasury Target Portfolio and the Equity/10-Year Treasury Target Portfolio). Each Target Portfolio is a combination of the Equity Basket and the relevant Underlying Fixed Income Asset (each a “**Portfolio Constituent**”, and together “**Portfolio Constituents**” with respect to a Target Portfolio) comprising each Target Portfolio, on each Index Business Day having the highest possible hypothetical historical weighted average of Portfolio Constituent volatilities while still targeting a hypothetical historical volatility equal to the Volatility Target (as specified in the attached Annex) for the combination, subject to a maximum aggregate weight of the Leverage Cap (as specified in the attached Annex), and a minimum weight of 0% and a maximum weight of the Leverage Cap (as specified in the attached Annex) for each of the Portfolio Constituents, as described below. For each Target Portfolio, the weights of a Short-term Interim Basket are calculated using the Short-term parameters (i.e., using the Short-term Decay Factor of 0.94), and the weights of a Long-term Interim Basket are calculated using the Long-term parameters (i.e., using the Long-term Decay factor of 0.97), separately, and the target weights of the relevant Target Portfolio on an Index Business Day are set to equal the weights of the Interim Basket with a lower allocation to the Equity Basket, as selected between the weighting combination of the Equity Basket and the relevant Underlying Fixed Income Asset (each an “**Interim Basket Constituent**”, and together “**Interim Basket Constituents**”, with respect to an Interim Basket) of the Short-term Interim Basket and the Long-term Interim Basket. The target weights are then averaged over a two-day period to determine the averaged targets of the relevant Target Portfolio, as described below. The Methodology determines the relative exposures to the two Target Portfolios with different Underlying Fixed Income Assets (i.e, the Equity/2-Year Treasury Target Portfolio and the

Equity/10-Year Treasury Target Portfolio) based on the Fixed Income Momentum Signal, as described below under “3.4. Calculation of the Equity Basket Weight and Fixed Income Asset Weights in the Index”.

### 3.1. Calculation of the Equity Basket Interim Target Weights and Fixed Income Asset Interim Target Weights in the Interim Baskets

On any given Index Business Day<sub>(t)</sub>, in respect of each of the Interim Baskets with respect to each Target Portfolio, the Short-term Equity Basket Interim Target Weight and relevant Short-term Fixed Income Asset Interim Target Weight are determined based on Equity Basket Realized Volatility, the relevant Fixed Income Asset Realized Volatility, and the relevant Covariance between the two Interim Basket Constituents, in each case using the Short-term parameters, and the Long-term Equity Basket Interim Target Weight and relevant Long-term Fixed Income Asset Interim Target Weight are determined based on Equity Basket Realized Volatility, the relevant Fixed Income Asset Realized Volatility and the relevant Covariance between the two Interim Basket Constituents, in each case using the Long-term parameters.

In respect of each of the Interim Baskets, the Methodology first will seek to find a combination of the Equity Basket and the relevant Underlying Fixed Income Asset that satisfies the following four criteria:

- (i) the hypothetical historical volatility of the combination is equal to the Volatility Target (as specified in the attached Annex) (taking covariance of the two Interim Basket Constituents into account);
- (ii) the combination has the highest possible hypothetical historical weighted average of Interim Basket Constituent volatilities;
- (iii) the aggregate of the Interim Basket Constituent weights is less than or equal to *Leverage Cap* (as specified in the attached Annex); and
- (iv) for each of the Interim Basket Constituents, its weight is less than or equal to *Leverage Cap* (as specified in the attached Annex), and larger than or equal to 0%

If no combination satisfies all of the above criteria (e.g., no permitted combination is sufficiently volatile to achieve the Volatility Target), the Methodology will target a combination of the Equity Basket and the relevant Underlying Fixed Income Asset with the highest possible hypothetical historical volatility (taking covariance of the two Interim Basket Constituents into account) from the combinations that satisfy criteria (iii) and (iv). The Methodology determines the Interim Basket Constituent weights as set out below.

In respect of each of the Underlying Fixed Income Assets and each set of parameters, the following notations are defined for transparency.



$$a_{m,k,t} = EquityBasketVol_{k,t}^2 + FixedIncomeAssetVol_{m,k,t}^2 - 2 \times EqFiCovar_{m,k,t}$$

$$b_{m,k,t} = 2 \times LeverageCap \times EqFiCovar_{m,k,t} - 2 \\ \times LeverageCap \times FixedIncomeAssetVol_{m,k,t}^2$$

$$c_{m,k,t} = \left( LeverageCap \times FixedIncomeAssetVol_{m,k,t} \right)^2 - VolatilityTarget^2$$

$$delta_{m,k,t} = b_{m,k,t}^2 - 4 \times a_{m,k,t} \times c_{m,k,t}$$

Besides, the Correlation between the Equity Basket and the relevant Underlying Fixed Income Asset, the Equity Basket Preliminary Weight, and the relevant Fixed Income Asset Preliminary Weight are calculated according to the following formulas:

$$\rho_{m,k,t} = \frac{EqFiCovar_{m,k,t}}{EquityBasketVol_{k,t} \times FixedIncomeAssetVol_{m,k,t}}$$

$$w_{EQ,m,k,t}^{Prelim} = \frac{VolTarget}{EquityBasketVol_{k,t} \times \sqrt{2 + 2 \times \rho_{m,k,t}}}$$

$$w_{FI,m,k,t}^{Prelim} = \frac{VolTarget}{FixedIncomeAssetVol_{m,k,t} \times \sqrt{2 + 2 \times \rho_{m,k,t}}}$$

Where:

*Subscript (EQ)* refers to the Equity Basket;

*Subscript (FI)* refers to the Underlying Fixed Income Asset;

*Subscript (t)* refers to the given Index Business Day<sub>(t)</sub>;

*Subscript (k)* refers to the short-term parameters (“ST”) or long-term parameters (“LT”) (as specified in the Annex);

*Subscript (m)* refers to the relevant Underlying Fixed Income Asset, with  $m = 10Y$  meaning the 10Y UST Futures Position, and  $m = 2Y$  meaning the 2Y UST Futures Position;

$\rho_{m,k,t}$  is the correlation between the Equity Basket and the relevant Underlying Fixed Income Asset<sub>(m)</sub> under the parameter<sub>(k)</sub> as of date<sub>(t)</sub>;

$w_{EQ,m,k,t}^{Prelim}$  is the Equity Basket Preliminary Weight in respect of the Underlying Fixed Income Asset<sub>(m)</sub> under the parameter<sub>(k)</sub> as of date<sub>(t)</sub>;

$w_{FI,m,k,t}^{Prelim}$  is the Fixed Income Asset Preliminary Weight in respect of the Underlying Fixed Income Asset<sub>(m)</sub> under the parameter<sub>(k)</sub> as of date<sub>(t)</sub>;

$EquityBasketVol_{k,t}$  is Equity Basket Realized Volatility under the parameter $_{(k)}$  as of date $_{(t)}$  (as defined under “3.5.Calculation of the Equity Basket Realized Volatilities” below);

$FixedIncomeAssetVol_{m,k,t}$  is Fixed Income Asset Realized Volatility of the relevant Underlying Fixed Income Asset $_{(m)}$  under the parameter $_{(k)}$  as of date $_{(t)}$  (as defined under “3.6.Calculation of the Fixed Income Asset Realized Volatilities” below);

$EqFiCovar_{m,k,t}$  is Covariance between the Equity Basket and the relevant Underlying Fixed Income Asset $_{(m)}$  under the parameter $_{(k)}$  as of date $_{(t)}$  (as defined under “3.7.Calculation of the Covariances between the Equity Basket and the Underlying Fixed Income Assets” below);

$VolatilityTarget$  refers to the Volatility Target (as specified in the Annex); and

$LeverageCap$  refers to the Leverage Cap (as specified in the Annex).

Specifically, to identify Interim Baskets with respect to each Target Portfolio, the Methodology follows the following steps to determine the Interim Target Weights for the Equity Basket and the relevant Underlying Fixed Income Asset in the Interim Baskets in respect of each of the Underlying Fixed Income Assets and each set of parameters.

- (i) If  $a_{m,k,t}$  is not equal to 0, and the sum of the Preliminary Weights ( $w_{EQ,m,k,t}^{Prelim} + w_{FI,m,k,t}^{Prelim}$ ) is less than or equal to  $LeverageCap$ ,

$$w_{EQ,m,k,t}^{InterimTarget} = w_{EQ,m,k,t}^{Prelim}$$

$$w_{FI,m,k,t}^{InterimTarget} = w_{FI,m,k,t}^{Prelim}$$

- (ii) If  $a_{m,k,t}$  is not equal to 0, the sum of the Preliminary Weights ( $w_{EQ,m,k,t}^{Prelim} + w_{FI,m,k,t}^{Prelim}$ ) is higher than  $LeverageCap$ ,  $\delta_{m,k,t} \geq 0$  and  $EquityBasketVol_{k,t} \geq FixedIncomeAssetVol_{m,k,t}$ ,

$$w_{EQ,m,k,t}^{InterimTarget} = \max \left[ 0\%, \min(LeverageCap, \frac{-b_{m,k,t} + \sqrt{b_{m,k,t}^2 - 4 \times a_{m,k,t} \times c_{m,k,t}}}{2 \times a_{m,k,t}}) \right]$$

$$w_{FI,m,k,t}^{InterimTarget} = LeverageCap - w_{EQ,m,k,t}^{InterimTarget}$$

- (iii) If  $a_{m,k,t}$  is not equal to 0, the sum of the Preliminary Weights ( $w_{EQ,m,k,t}^{Prelim} + w_{FI,m,k,t}^{Prelim}$ ) is higher than  $LeverageCap$ ,  $\delta_{m,k,t} < 0$  and  $EquityBasketVol_{k,t} \geq FixedIncomeAssetVol_{m,k,t}$ ,

$$w_{EQ,m,k,t}^{InterimTarget} = \max \left[ 0\%, \min(LeverageCap, \frac{VolTarget}{EquityBasketVol_{k,t}}) \right]$$

$$w_{FI,m,k,t}^{InterimTarget} = LeverageCap - w_{EQ,m,k,t}^{InterimTarget}$$

- (iv) If  $a_{m,k,t}$  is not equal to 0, the sum of the Preliminary Weights ( $w_{EQ,m,k,t}^{Prelim} + w_{FI,m,k,t}^{Prelim}$ ) is higher than  $LeverageCap$ ,  $\delta_{m,k,t} \geq 0$  and  $EquityBasketVol_{k,t} < FixedIncomeAssetVol_{m,k,t}$ ,

$$w_{EQ,m,k,t}^{InterimTarget} = \max \left[ 0\%, \min \left( LeverageCap, \frac{-b_{m,k,t} - \sqrt{b_{m,k,t}^2 - 4 \times a_{m,k,t} \times c_{m,k,t}}}{2 \times a_{m,k,t}} \right) \right]$$

$$w_{FI,m,k,t}^{InterimTarget} = LeverageCap - w_{EQ,m,k,t}^{InterimTarget}$$

- (v) If  $a_{m,k,t}$  is not equal to 0, the sum of the Preliminary Weights ( $w_{EQ,m,k,t}^{Prelim} + w_{FI,m,k,t}^{Prelim}$ ) is higher than *LeverageCap*,  $\delta_{m,k,t} < 0$  and  $EquityBasketVol_{k,t} < FixedIncomeAssetVol_{m,k,t}$ ,

$$w_{FI,m,k,t}^{InterimTarget} = \max \left[ 0\%, \min \left( LeverageCap, \frac{VolTarget}{FixedIncomeAssetVol_{m,k,t}} \right) \right]$$

$$w_{EQ,m,k,t}^{InterimTarget} = LeverageCap - w_{FI,m,k,t}^{InterimTarget}$$

- (vi) If  $a_{m,k,t}$  is equal to 0,

$$w_{EQ,m,k,t}^{InterimTarget} = \max \left[ 0\%, \min \left( LeverageCap, \frac{VolTarget}{EquityBasketVol_{k,t}} \right) \right]$$

$$w_{FI,m,k,t}^{InterimTarget} = 0$$

Where:

*Subscript* <sub>(EQ)</sub> refers to the Equity Basket;

*Subscript* <sub>(FI)</sub> refers to the Underlying Fixed Income Asset;

*Subscript* <sub>(t)</sub> refers to the given Index Business Day<sub>(t)</sub>;

*Subscript* <sub>(k)</sub> refers to the short-term parameters (“ST”) or long-term parameters (“LT”) (as specified in the Annex);

*Subscript* <sub>(m)</sub> refers to the relevant Underlying Fixed Income Asset, with  $m = 10Y$  meaning the 10Y UST Futures Position, and  $m = 2Y$  meaning the 2Y UST Futures Position;

$w_{EQ,m,k,t}^{Prelim}$  is the Equity Basket Preliminary Weight in respect of the Underlying Fixed Income Asset<sub>(m)</sub> under the parameter<sub>(k)</sub> as of date<sub>(t)</sub>;

$w_{FI,m,k,t}^{Prelim}$  is the Fixed Income Asset Preliminary Weight in respect of the Underlying Fixed Income Asset<sub>(m)</sub> under the parameter<sub>(k)</sub> as of date<sub>(t)</sub>;

$EquityBasketVol_{k,t}$  is Equity Basket Realized Volatility under the parameter<sub>(k)</sub> as of date<sub>(t)</sub> (as defined under “3.5.Calculation of the Equity Basket Realized Volatilities” below);

$FixedIncomeAssetVol_{m,k,t}$  is Fixed Income Asset Realized Volatility of the relevant Underlying Fixed Income Asset<sub>(m)</sub> under the parameter<sub>(k)</sub> as of date<sub>(t)</sub> (as defined under “3.6.Calculation of the Fixed Income Asset Realized Volatilities” below);

*VolatilityTarget* refers to the Volatility Target (as specified in the Annex);

*LeverageCap* refers to the Leverage Cap (as specified in the Annex);

$w_{EQ,m,k,t}^{InterimTarget}$  is the Equity Basket Interim Target Weight in respect of the Underlying Fixed Income Asset<sub>(m)</sub> under the parameter<sub>(k)</sub> as of date<sub>(t)</sub>; and

$w_{FI,m,k}^{InterimTarget}$  is the Fixed Income Asset Interim Target Weight in respect of the Underlying Fixed Income Asset<sub>(m)</sub> under the parameter<sub>(k)</sub> as of date<sub>(t)</sub>.

### 3.2. Calculation of the Equity Basket Target Weight and Fixed Income Asset Target Weight in the Target Portfolio

In respect of the Target Portfolio with each of the Underlying Fixed Income Assets, the Equity Basket Target Weight and Fixed Income Asset Target Weight on any given Index Business Day<sub>(t)</sub> are calculated as follows.

If  $w_{EQ,m,LT,t}^{InterimTarget} \geq w_{EQ,m,ST,t}^{InterimTarget}$ , then

$$w_{EQ,m,t}^{Target} = w_{EQ,m,ST,t}^{InterimTarget}$$

$$w_{FI,m,t}^{Target} = w_{FI,m,ST,t}^{InterimTarget}$$

Otherwise,

$$w_{EQ,m,t}^{Target} = w_{EQ,m,LT,t}^{InterimTarget}$$

$$w_{FI,m,t}^{Target} = w_{FI,m,LT,t}^{InterimTarget}$$

Where:

*Subscript (EQ)* refers to the Equity Basket;

*Subscript (FI)* refers to the Underlying Fixed Income Asset;

*Subscript (t)* refers to the given Index Business Day<sub>(t)</sub>;

*Subscript (m)* refers to the relevant Underlying Fixed Income Asset, with  $m = 10Y$  meaning the 10Y UST Futures Position, and  $m = 2Y$  meaning the 2Y UST Futures Position;

$w_{EQ,m,t}^{Target}$  is the Equity Basket Target Weight in respect of the Underlying Fixed Income Asset<sub>(m)</sub> as of date<sub>(t)</sub>;

$w_{EQ,m,ST,t}^{InterimTarget}$  is the Short-Term Equity Basket Interim Target Weight in respect of the Underlying Fixed Income Asset<sub>(m)</sub> as of date<sub>(t)</sub>;

$w_{EQ,m,LT,t}^{InterimTarget}$  is the Long-Term Equity Basket Interim Target Weight in respect of the Underlying Fixed Income Asset<sub>(m)</sub> as of date<sub>(t)</sub>;

$w_{FI,m,t}^{Target}$  is the Fixed Income Asset Target Weight in respect of the Underlying Fixed Income Asset<sub>(m)</sub> as of date<sub>(t)</sub>;

$w_{FI,m,ST,t}^{InterimTarget}$  is the Short-term Fixed Income Asset Interim Target Weight in respect of the Underlying Fixed Income Asset<sub>(m)</sub> as of date<sub>(t)</sub>; and

$w_{FI,m,LT,t}^{InterimTarget}$  is the Long-term Fixed Income Asset Interim Target Weight in respect of the Underlying Fixed Income Asset<sub>(m)</sub> as of date<sub>(t)</sub>.

### 3.3. Calculation of the Averaged Equity Basket Target Weight and Averaged Fixed Income Asset Target Weight in the Target Portfolio

In respect of the Target Portfolio with each of the Underlying Fixed Income Assets, the Averaged Equity Basket Target Weight and Averaged Fixed Income Asset Target Weight on any given Index Business Day<sub>(t)</sub> are calculated as follows.

$$w_{EQ,m,t}^{AveragedTarget} = \frac{1}{2} \times \sum_s w_{EQ,m,s}^{Target}$$

$$w_{FI,m,t}^{AveragedTarget} = \frac{1}{2} \times \sum_s w_{FI,m,s}^{Target}$$

Where:

*Subscript* <sub>(EQ)</sub> refers to the Equity Basket;

*Subscript* <sub>(FI)</sub> refers to the Underlying Fixed Income Asset;

*Subscript* <sub>(m)</sub> refers to the relevant Underlying Fixed Income Asset, with  $m = 10Y$  meaning the 10Y UST Futures Position, and  $m = 2Y$  meaning the 2Y UST Futures Position;

*Subscript* <sub>(t)</sub> refers to the given Index Business Day<sub>(t)</sub>;

*Subscript* <sub>(s)</sub> refers to the relevant Index Business Day and each Index Business Day prior to such Index Business Day<sub>(t)</sub> within the relevant two-day Weight Averaging Period;

$w_{EQ,m,s}^{AveragedTarget}$  is the Averaged Equity Basket Target Weight in respect of the Underlying Fixed Income Asset<sub>(m)</sub> as of date<sub>(t)</sub>;

$w_{EQ,m,s}^{Target}$  is the Equity Basket Target Weight in respect of the Underlying Fixed Income Asset<sub>(m)</sub> as of date<sub>(t)</sub>;

$w_{FI,m,s}^{AveragedTarget}$  is the Averaged Fixed Income Asset Target Weight in respect of the Underlying Fixed Income Asset<sub>(m)</sub> as of date<sub>(t)</sub>;

$w_{FI,m,s}^{Target}$  is the Fixed Income Asset Target Weight in respect of the Underlying Fixed Income Asset<sub>(m)</sub> as of date<sub>(t)</sub>; and

The “Weight Averaging Period” on any given Index Business Day is the period from (but excluding) the day which is 2 Index Business Days prior to the given Index Business Day to (and including) the given Index Business Day.

### 3.4. Calculation of the Equity Basket Weight and Fixed Income Asset Weights in the Index

The Equity Basket Weight and Fixed Income Asset Weights on any given Index Business Day<sub>(t)</sub> are calculated as follows, based on the Fixed Income Momentum Signal and the Averaged Equity Basket Target Weights and Averaged Fixed Income Asset Target Weights in the Target Portfolios in respect of each Underlying Fixed Income Asset calculated in the above section.

$$w_{EQ,t} = w_{EQ,10Y,t}^{AveragedTarget} \times FixedIncomeMomentumSignal_t + w_{EQ,2Y,t}^{AveragedTarget} \times (1 - FixedIncomeMomentumSignal_t)$$

$$w_{FI,10Y,t} = w_{FI,10Y,t}^{AveragedTarget} \times FixedIncomeMomentumSignal_t$$

$$w_{FI,2Y,t} = w_{FI,2Y,t}^{AveragedTarget} \times (1 - FixedIncomeMomentumSignal_t)$$

Where:

*Subscript* <sub>(EQ)</sub> refers to the Equity Basket;

*Subscript* <sub>(FI, 10Y)</sub> refers to the 10Y UST Futures Position;

*Subscript* <sub>(FI, 2Y)</sub> refers to the 2Y UST Futures Position;

*Subscript* <sub>(t)</sub> refers to the given Index Business Day<sub>(t)</sub>;

*Subscript* <sub>(m)</sub> refers to the relevant Underlying Fixed Income Asset, with  $m = 10Y$  meaning the 10Y UST Futures Position, and  $m = 2Y$  meaning the 2Y UST Futures Position;

*FixedIncomeMomentumSignal*<sub>t</sub> is the Fixed Income Momentum Signal as of date<sub>(t)</sub>;

*w*<sub>EQ,t</sub> is the Equity Basket Weight as of date<sub>(t)</sub>;

*w*<sub>FI,10Y,t</sub> is the 10Y UST Futures Position Weight as of date<sub>(t)</sub>;

*w*<sub>FI,2Y,t</sub> is the 2Y UST Futures Position Weight as of date<sub>(t)</sub>;

*w*<sub>EQ,m,s</sub><sup>AveragedTarget</sup> is the Averaged Equity Basket Target Weight in respect of the Underlying Fixed Income Asset<sub>(m)</sub> as of date<sub>(t)</sub>; and

*w*<sub>FI,m,s</sub><sup>AveragedTarget</sup> is the Averaged Fixed Income Asset Target Weight in respect of the Underlying Fixed Income Asset<sub>(m)</sub> as of date<sub>(t)</sub>.

### 3.5. Calculation of the Equity Basket Realized Volatilities

The Short-term Equity Basket Realized Volatility and Long-term Equity Basket Realized Volatility on the Target Portfolio Volatility Base Date are equal to the Volatility Target (as specified in the attached Annex). On any given Index Business Day<sub>(t)</sub> following the Target Portfolio Volatility Base Date, the Short-term Equity Basket Realized Volatility and Long-term Equity Basket Realized Volatility are calculated according to the following formula:

$$EquityBasketVol_{k,t} = \sqrt{\beta_k \times EquityBasketVol_{k,t-1}^2 + (1 - \beta_k) \times 252 \times \left[ \ln \left( \frac{EQBERV_{t-d}}{EQBERV_{t-d-1}} \right) \right]^2}$$

Where:

*Subscript* <sub>(t)</sub> refers to the given Index Business Day;

*Subscript* <sub>(t-d)</sub> refers to the d<sup>th</sup> Index Business Day preceding Index Business Day<sub>(t)</sub>;

*Subscript* <sub>(t-d-1)</sub> refers to the (d+1)<sup>th</sup> Index Business Day preceding Index Business Day<sub>(t)</sub>;

*Subscript* <sub>(k)</sub> refers to the short-term parameters (“ST”) or long-term parameters (“LT”) (as specified in the Annex);

*EquityBasketVol*<sub>ST,t</sub> is the Short-term Equity Basket Realized Volatility as of date<sub>(t)</sub>;

*EquityBasketVol*<sub>LT,t</sub> is the Long-term Equity Basket Realized Volatility as of date<sub>(t)</sub>;

$EQBERV_{t-d}$  is the Equity Basket Excess Return Value as of date $_{(t-d)}$  ;  
 $EQBERV_{t-d-1}$  is the Equity Basket Excess Return Value as of date $_{(t-d-1)}$ ;  
 $\beta_{ST}$  refers the Short-term Decay Factor (as defined in the Annex);  
 $\beta_{LT}$  refers the Long-term Decay Factor (as defined in the Annex); and  
 $d$  refers to the Rebalance Lag (as defined in the Annex).

### 3.6. Calculation of the Fixed Income Asset Realized Volatilities

In respect of each of the Underlying Fixed Income Assets, Short-term Fixed Income Asset Realized Volatility and Long-term Fixed Income Asset Realized Volatility on the Target Portfolio Volatility Base Date are equal to Volatility Target (as specified in the attached Annex). On any given Index Business Day $_{(t)}$  following the Target Portfolio Volatility Base Date, the Short-term Fixed Income Asset Realized Volatility and Long-term Fixed Income Asset Realized Volatility are calculated according to the following formula:

$$FixedIncomeAssetVol_{m,k,t} = \sqrt{\beta_k \times FixedIncomeAssetVol_{m,k,t-1}^2 + (1 - \beta_k) \times 252 \times \left[ \ln \left( \frac{FIAERV_{m,t-d}}{FIAERV_{m,t-d-1}} \right) \right]^2}$$

Where:

$Subscript_{(t)}$  refers to the given Index Business Day

$Subscript_{(t-d)}$  refers to the  $d^{th}$  Index Business Day preceding Index Business Day $_{(t)}$ ;

$Subscript_{(t-d-1)}$  refers to the  $(d+1)^{th}$  Index Business Day preceding Index Business Day $_{(t)}$ ;

$Subscript_{(m)}$  refers to the relevant Underlying Fixed Income Asset, with  $m = 10Y$  meaning the 10Y UST Futures Position, and  $m = 2Y$  meaning the 2Y UST Futures Position;

$Subscript_{(k)}$  refers to the short-term parameters (“ST”) or long-term parameters (“LT”) (as specified in the Annex);

$FixedIncomeAssetVol_{m,ST,t}$  is the Short-term Fixed Income Asset Realized Volatility of the Underlying Fixed Income Asset $_{(m)}$  as of date $_{(t)}$ ;

$FixedIncomeAssetVol_{m,LT,t}$  is the Long-term Fixed Income Asset Realized Volatility of the Underlying Fixed Income Asset $_{(m)}$  as of date $_{(t)}$ ;

$FIAERV_{m,t-d}$  is the Fixed Income Asset Excess Return Value of the Underlying Fixed Income Asset $_{(m)}$  as of date $_{(t-d)}$ ;

$FIAERV_{m,t-d-1}$  is the Fixed Income Asset Excess Return Value of the Underlying Fixed Income Asset $_{(m)}$  as of date $_{(t-d-1)}$ ;

$\beta_{ST}$  refers the Short-term Decay Factor (as defined in the Annex);

$\beta_{LT}$  refers the Long-term Decay Factor (as defined in the Annex); and

$d$  refers to the Rebalance Lag (as defined in the Annex).

### 3.7. Calculation of the Covariances between the Equity Basket and the Underlying Fixed Income Assets

For each Underlying Fixed Income Asset, the Short-term Covariance between the Equity Basket and the relevant Underlying Fixed Income Asset and Long-term Covariance between the Equity Basket and the relevant Underlying Fixed Income Asset on the Target Portfolio Volatility Base Date are equal to the square of Volatility Target (as specified in the attached Annex). On any given Index Business Day<sub>(t)</sub> following the Target Portfolio Volatility Base Date, the Short-term Covariance between the Equity Basket and the relevant Underlying Fixed Income Asset and Long-term Covariance between the Equity Basket and the relevant Underlying Fixed Income Asset are calculated according to the following formula:

$$EqFiCovar_{m,k,t} =$$

$$\beta_k \times EqFiCovar_{m,k,t-1} + (1 - \beta_k) \times 252 \times \left[ \ln \left( \frac{EQBERV_{t-d}}{EQBERV_{t-d-1}} \right) \right] \times \left[ \ln \left( \frac{FIAERV_{m,t-d}}{FIAERV_{m,t-d-1}} \right) \right]$$

Where:

*Subscript* <sub>(t)</sub> refers to the given Index Business Day

*Subscript* <sub>(t-d)</sub> refers to the d<sup>th</sup> Index Business Day preceding Index Business Day<sub>(t)</sub>;

*Subscript* <sub>(t-d-1)</sub> refers to the (d+1)<sup>th</sup> Index Business Day preceding Index Business Day<sub>(t)</sub>;

*Subscript* <sub>(m)</sub> refers to the relevant Underlying Fixed Income Asset, with *m* = 10Y meaning the 10Y UST Futures Position, and *m* = 2Y meaning the 2Y UST Futures Position;

*Subscript* <sub>(k)</sub> refers to the short-term parameters (“ST”) or long-term parameters (“LT”) (as specified in the Annex);

*EqFiCovar* <sub>m,ST,t</sub> is the Short-term Covariance between the Equity Basket and the Underlying Fixed Income Asset<sub>(m)</sub> as of date<sub>(t)</sub>;

*EqFiCovar* <sub>m,LT,t</sub> is the Long-term Covariance between the Equity Basket and the Underlying Fixed Income Asset<sub>(m)</sub> as of date<sub>(t)</sub>;

*EQBERV* <sub>t-d</sub> is the Equity Basket Excess Return Value as of date<sub>(t-d)</sub> ;

*EQBERV* <sub>t-d-1</sub> is the Equity Basket Excess Return Value as of date<sub>(t-d-1)</sub>;

*FIAERV* <sub>m,t-d</sub> is the Fixed Income Asset Excess Return Value of the Underlying Fixed Income Asset<sub>(m)</sub> as of date<sub>(t-d)</sub> ;

*FIAERV* <sub>m,t-d-1</sub> is the Fixed Income Asset Excess Return Value of the Underlying Fixed Income Asset<sub>(m)</sub> on the date<sub>(t-d-1)</sub>;

*β*<sub>ST</sub> refers the Short-term Decay Factor (as defined in the Annex);

*β*<sub>LT</sub> refers the Long-term Decay Factor (as defined in the Annex); and

*d* refers to the Rebalance Lag (as defined in the Annex).



#### 4. Calculation of the Index Value

The Index Value on the Index Base Date (as defined in the Annex) is equal to 100. On any given Index Business Day<sub>(t)</sub> following the Index Base Date, the Index Value is calculated according to the following formula:

$$\begin{aligned} Index_t &= Index_{t-1} \\ &\times \left[ 1 + w_{EQ,t-1} \times \left( \frac{EQBERV_t}{EQBERV_{t-1}} - 1 \right) + w_{FI,10Y,t-1} \times \left( \frac{FIAERV_{10Y,t}}{FIAERV_{10Y,t-1}} - 1 \right) \right. \\ &\left. + w_{FI,2Y,t-1} \times \left( \frac{FIAERV_{2Y,t}}{FIAERV_{2Y,t-1}} - 1 \right) \right] \times e^{(-Deduction\_Rate \times DCF_{t-1,t})} \end{aligned}$$

Where:

*Subscript* <sub>(t)</sub> refers to the given Index Business Day<sub>(t)</sub>;

*Subscript* <sub>(t-1)</sub> refers to the Index Business Day immediately preceding (but not including) Index Business Day<sub>(t)</sub>;

*Index*<sub>t</sub> means the Index Value as of date<sub>(t)</sub>;

*Index*<sub>t-1</sub> means the Index Value as of date<sub>(t-1)</sub>;

*w*<sub>EQ,t-1</sub> is the Equity Basket Weight as of date<sub>(t-1)</sub>;

*w*<sub>FI,10Y,t-1</sub> is the 10Y UST Futures Position Weight as of date<sub>(t-1)</sub>;

*w*<sub>FI,2Y,t-1</sub> is the 2Y UST Futures Position Weight as of date<sub>(t-1)</sub>;

*EQBERV*<sub>t</sub> means the Equity Basket Excess Return Value as of date<sub>(t)</sub>;

*EQBERV*<sub>t-1</sub> means the Equity Basket Excess Return Value as of date<sub>(t-1)</sub>;

*FIAERV*<sub>10Y,t</sub> means the Fixed Income Asset Excess Return Value of 10Y UST Futures Position as of date<sub>(t)</sub>;

*FIAERV*<sub>10Y,t-1</sub> means the Fixed Income Asset Excess Return Value of 10Y UST Futures Position as of date<sub>(t-1)</sub>;

*FIAERV*<sub>2Y,t</sub> means the Fixed Income Asset Excess Return Value of 2Y UST Futures Position as of date<sub>(t)</sub>;

*FIAERV*<sub>2Y,t-1</sub> means the Fixed Income Asset Excess Return Value of 2Y UST Futures Position as of date<sub>(t-1)</sub>;

*Deduction\_Rate* means the Deduction Rate of 0.50% per annum;

*DCF*<sub>t-1,t</sub> is the day count fraction for the period from (but excluding) date<sub>(t-1)</sub> to (and including) the given Index Business Day<sub>(t)</sub>, determined by using the Day Count Convention (as specified in the Annex); and

*e* means the exponential function.

#### 5. Calculation of the Underlying Asset Values

The Underlying Asset Value<sub>(i)</sub> of Underlying Asset<sub>(i)</sub> on the Underlying Asset Base Date (as defined in the Annex) is equal to 100.

5.1. *If the Underlying Asset is an Equity Asset (as described in the Annex under “Overview of Underlying Assets”)*

On any Asset Business Day<sub>(t)</sub> following the Underlying Asset Base Date the Underlying Asset Value<sub>(i)</sub> of Underlying Asset<sub>(i)</sub> is calculated according to the following formula:

$$A_{i,t}^{EQ} = A_{i,t-1}^{EQ} \times \frac{I_{i,t} + D_{i,t}}{I_{i,t-1}}$$

Where:

Subscript <sub>(t)</sub> refers to the given Asset Business Day;

Subscript <sub>(t-1)</sub> refers to the Asset Business Day immediately preceding Asset Business Day<sub>(t)</sub>;

$A_{i,t}^{EQ}$  means the Underlying Asset Value<sub>(i)</sub> of Underlying Equity Asset<sub>(i)</sub> as of the Asset Business Day<sub>(t)</sub>;

$A_{i,t-1}^{EQ}$  means the Underlying Asset Value<sub>(i)</sub> of Underlying Equity Asset<sub>(i)</sub> as of the Asset Business Day immediately preceding Asset Business Day<sub>(t)</sub>;

$I_{i,t}$  means the Reference Level of Underlying Equity Asset<sub>(i)</sub> (determined as specified in the Annex) as of Asset Business Day<sub>(t)</sub>;

$I_{i,t-1}$  means the Reference Level of Underlying Equity Asset<sub>(i)</sub> as of the Asset Business Day immediately preceding Asset Business Day<sub>(t)</sub>; and

$D_{i,t}$  means, for each Underlying Equity Asset<sub>(i)</sub>, the aggregate amount of cash dividends with an ex-dividend date during the period from but excluding Asset Business Day<sub>(t-1)</sub> to and including Asset Business Day<sub>(t)</sub>.

5.2. *If the Underlying Asset is 10Y UST Futures Position*

The 10Y UST Futures Position tracks a synthetic exposure to the total return (including income from interest) of the first nearby 10-Year U.S. Treasury Note futures contracts (the “**10Y U.S. Treasury Futures Contracts**”). 10Y U.S. Treasury Futures Contracts are currently listed for trading on the Chicago Board of Trade (the “**CBOT**”). For more details on the 10Y U.S. Treasury Futures Contracts and 10-Year U.S. Treasury notes, please see the section below entitled “*10-Year U.S. Treasury Note Futures Contracts*”.

**Daily Value Calculation**

The 10Y UST Futures Position is a U.S. dollar denominated component and is calculated on each day on which the Chicago Board of Trade is open for trading (such day, an “**Asset Business Day**”). The value of the 10Y UST Futures Position on any given Asset Business Day will be calculated as the product of (i) the value of the 10Y UST Futures Position as of the immediately preceding Asset Business Day and (ii) the sum of (x) the daily return ratio of the value of the 10Y U.S. Treasury Futures Contracts on such day and (y) the overnight interest rate for the calculation period.

**Daily Return Ratio of the Value of the 10Y U.S. Treasury Futures Contracts:** On any given Asset Business Day (other than during the roll period as described below), the daily return ratio

of the value of 10Y U.S. Treasury Futures Contracts is calculated as the *quotient* of (a) the 10Y U.S. Treasury Futures Contract Valuation Price (as described below) on the relevant Asset Business Day and (b) the 10Y U.S. Treasury Futures Contract Valuation Price on the immediately preceding Asset Business Day. During the roll period, the calculation of the daily return ratio of 10Y U.S. Treasury Futures Contracts will reflect the price of the second nearby 10Y U.S. Treasury Futures Contracts into which the first nearby 10Y U.S. Treasury Futures Contracts are gradually rolled over.

**10Y U.S. Treasury Futures Contracts Valuation Price:** The 10Y U.S. Treasury Futures Contracts Valuation Price on any given Asset Business Day means the official daily settlement price per 10Y U.S. Treasury Futures Contract quoted by the CBOT on such Asset Business Day.

**Overnight Interest Rate:** The interest rate calculation uses the overnight interest rate as published on Global Insight DRI page USD-FEDERAL-FUNDS-H15 and the ACT/360 day count fraction, as defined in the 2006 ISDA Definitions. If the overnight interest rate is not published or is otherwise unavailable for the applicable calculation period, then the last available overnight interest rate published on such page will be used as the overnight interest rate for such calculation period.

The Calculation Agent will, however, not calculate the daily asset value or will calculate such value pursuant to a different methodology when at any given time the 10Y U.S. Treasury Futures Contracts Valuation Prices for the first nearby 10Y U.S. Treasury Futures Contracts and/or the second nearby 10Y U.S. Treasury Futures Contracts, as applicable, are not published or are otherwise unavailable as further described below.

### ***Roll Methodology***

As 10Y U.S. Treasury Futures Contracts have a quarterly expiration period (March, June, September or December), when the first nearby 10Y U.S. Treasury Futures Contracts come to expiration, they are replaced by the second nearby 10Y U.S. Treasury Futures Contracts. For example, a 10Y U.S. Treasury Futures Contract purchased and held in May may specify a June expiration. As time passes, the contract expiring in June is replaced by a 10Y U.S. Treasury Futures Contract for delivery in September. This process is referred to as “rolling”.

**Roll Period:** Rolling will be carried out during the three Asset Business Days starting from, and including, the third last Asset Business Day prior to the first notice date of the first nearby 10Y U.S. Treasury Futures Contracts to, and including, the last Asset Business Day prior to the first notice date of such 10Y U.S. Treasury Futures Contracts. Such period is referred to from time to time as the “roll period”. On each Asset Business Day of the roll period, one third of the notional investment in the first nearby 10Y U.S. Treasury Futures Contracts will be rolled into the second nearby 10Y U.S. Treasury Futures Contracts, and the prices at which 10Y U.S. Treasury Futures Contracts are rolled will be based on the 10Y U.S. Treasury Futures Contracts Valuation Price for each of the first nearby and second nearby 10Y U.S. Treasury Futures Contracts. Rolling will, however, be carried out pursuant to a different methodology when at any time during the roll period the 10Y U.S. Treasury Futures Contracts Valuation Prices for one or both of the first nearby and second nearby 10Y U.S. Treasury Futures Contracts are not published or are otherwise unavailable as further described below.

### ***Price of 10Y U.S. Treasury Futures Contracts Unavailable***

**Unavailable Outside of the Roll Period:** If, on any Asset Business Day that does not fall within the roll period, the 10Y U.S. Treasury Futures Contracts Valuation Price for the first nearby 10Y U.S. Treasury Futures Contracts is not published or is otherwise unavailable, then the Calculation Agent will not calculate any value for the 10Y UST Futures Position but will use the last available asset value.

If, on the immediately following Asset Business Day, the 10Y U.S. Treasury Futures Contracts Valuation Price for the first nearby 10Y U.S. Treasury Futures Contracts is available, the daily return ratio of the value of the 10Y U.S. Treasury Futures Contracts will be calculated as the *quotient* of (a) the 10Y U.S. Treasury Futures Contracts Valuation Price on that Asset Business Day and (b) the last available 10Y U.S. Treasury Futures Contracts Valuation Price (however, for the avoidance of doubt, if such Asset Business Day is the first day of the roll period and the 10Y U.S. Treasury Futures Contracts Valuation Price for the second nearby 10Y U.S. Treasury Futures Contracts is not published or is otherwise unavailable on that Asset Business Day, then, as further described below, the Calculation Agent will not calculate any value for the 10Y UST Futures Position but will use the last available asset value).

**Unavailable Within the Roll Period:** If the 10Y U.S. Treasury Futures Contracts Valuation Price for one or both of the first nearby and second nearby 10Y U.S. Treasury Futures Contracts is not published or is otherwise unavailable at any time during the roll period, then rolling will be carried out pursuant to the following alternative rolling methodology:

- **Case 1:** If the 10Y U.S. Treasury Futures Contracts Valuation Price for one or both of the first nearby and second nearby 10Y U.S. Treasury Futures Contracts is not published or is otherwise unavailable on the first Asset Business Day of the roll period, then one half of the notional investment in the first nearby 10Y U.S. Treasury Futures Contracts will be rolled into the second nearby 10Y U.S. Treasury Futures Contracts on the second Asset Business Day of the roll period if the 10Y U.S. Treasury Futures Contracts Valuation Prices for both the first nearby and second nearby 10Y U.S. Treasury Futures Contracts are available on such second Asset Business Day, and the second half of the notional investment in the first nearby 10Y U.S. Treasury Futures Contracts will be rolled over into the second nearby 10Y U.S. Treasury Futures Contracts on the third Asset Business Day of the roll period if the 10Y U.S. Treasury Futures Contracts Valuation Prices for both the first nearby and second nearby 10Y U.S. Treasury Futures Contracts are available on such third Asset Business Day; however, if the 10Y U.S. Treasury Futures Contracts Valuation Price for one or both of the first nearby and second nearby 10Y U.S. Treasury Futures Contracts is not published or is otherwise unavailable on such third Asset Business Day, then rolling of any remaining portion of the notional investment in the first nearby 10Y U.S. Treasury Futures Contracts will be carried out as set out below in respect of Case 4.
- **Case 2:** If the 10Y U.S. Treasury Futures Contracts Valuation Price for one or both of the first nearby and second nearby 10Y U.S. Treasury Futures Contracts is not published or is otherwise unavailable on both of the first and second Asset Business Days of the roll period, then the entire notional investment in the first nearby 10Y U.S. Treasury Futures Contracts will be rolled into the second nearby 10Y U.S. Treasury Futures Contracts on the third Asset

Business Day of the roll period; however, if the 10Y U.S. Treasury Futures Contracts Valuation Price for one or both of the first nearby and second nearby 10Y U.S. Treasury Futures Contracts is not published or is otherwise unavailable on such third Asset Business Day, then rolling of any remaining portion of the notional investment in the first nearby 10Y U.S. Treasury Futures Contracts will be carried out as set out below in respect of Case 4.

- **Case 3:** If the 10Y U.S. Treasury Futures Contracts Valuation Price for both of the first nearby and second nearby 10Y U.S. Treasury Futures Contracts is available on the first Asset Business Day of the roll period, on which one third of the notional investment in the first nearby 10Y U.S. Treasury Futures Contracts is rolled over into the second nearby 10Y U.S. Treasury Futures Contracts, but the 10Y U.S. Treasury Futures Contracts Valuation Price for one or both of the first nearby and second nearby 10Y U.S. Treasury Futures Contracts is not published or is otherwise unavailable on the second Asset Business Day of the roll period, then the remaining two thirds of the notional investment in the first nearby 10Y U.S. Treasury Futures Contracts will be rolled into the second nearby 10Y U.S. Treasury Futures Contracts on the third Asset Business Day of the roll period; however, if the 10Y U.S. Treasury Futures Contracts Valuation Price for one or both of the first nearby and second nearby 10Y U.S. Treasury Futures Contracts is not published or is otherwise unavailable on such third Asset Business Day, then rolling of any remaining portion of the notional investment in the first nearby 10Y U.S. Treasury Futures Contracts will be carried out as set out below in respect of Case 4.
- **Case 4:** In any situation where the 10Y U.S. Treasury Futures Contracts Valuation Price for one or both of the first nearby and second nearby 10Y U.S. Treasury Futures Contracts is not published or is otherwise unavailable on the third Asset Business Day of the roll period (including where such price is not published or is otherwise unavailable on both of the first and third Asset Business Days of the roll period only, both of the second and third Asset Business Days of the roll period only or all of the three Asset Business Days of the roll period), then any remaining amount of the notional investment in the first nearby 10Y U.S. Treasury Futures Contracts will be rolled into the second nearby 10Y U.S. Treasury Futures Contracts on the first notice date, which is the Asset Business Day immediately following the third Asset Business Day of the roll period. On such first notice date, rolling will be effected by using the first traded prices for the first nearby 10Y U.S. Treasury Futures Contracts and the second nearby 10Y U.S. Treasury Futures Contracts, provided that if, on such first notice date, the first traded price for the first nearby 10Y U.S. Treasury Futures Contracts and/or the second nearby 10Y U.S. Treasury Futures Contracts is not published or is otherwise unavailable, then the first nearby 10Y U.S. Treasury Futures Contracts will be sold at the Valuation Price for such first nearby 10Y U.S. Treasury Futures Contracts on the 10Y UST Futures Last Reference Day (as defined below) and the second nearby 10Y U.S. Treasury Futures Contracts will be bought at the Valuation Price for such second nearby 10Y U.S. Treasury Futures Contracts on the 10Y UST Futures Last Reference Day.

On any given Asset Business Day on which rolling does not occur because the 10Y U.S. Treasury Futures Contracts Valuation Price for one or both of the first nearby and second nearby 10Y U.S. Treasury Futures Contracts is not published or is otherwise unavailable (such day, a “**10Y UST Futures No-roll Asset Business Day**”); for the avoidance of doubt, a 10Y UST Futures No-roll Asset Business Day may include any Asset Business Day of the roll period, as

the case may be), the Calculation Agent will not calculate any value for the 10Y UST Futures Position but will use the last available asset value.

If, on any Asset Business Day immediately following such 10Y UST Futures No-roll Asset Business Day, the 10Y U.S. Treasury Futures Contracts are rolled over pursuant to the alternative methodology described above, then the Calculation Agent will apply alternative calculation methods to compute the level of the 10Y UST Futures Position on such Asset Business Day, which can be summarized as follows:

On such Asset Business Day, the level of the 10Y UST Futures Position will be computed as the *product* of:

- the value of the 10Y UST Futures Position as of the last Asset Business Day on which the Valuation Prices for both of the first nearby and second nearby 10Y U.S. Treasury Futures Contracts were available (such day, the “**10Y UST Futures Last Reference Day**”); and
- the *sum* of:
  - (i) the *daily return ratio* reflecting either:
    - (a) if such Asset Business Day falls within the roll period, the weighted performance of the first nearby 10Y U.S. Treasury Futures Contracts and the weighted performance of the second nearby 10Y U.S. Treasury Futures Contracts from the 10Y UST Futures Last Reference Day to such Asset Business Day; or
    - (b) if such Asset Business Day is a first notice date, the *product* of (x) the weighted performance of the first nearby 10Y U.S. Treasury Futures Contracts from the 10Y UST Futures Last Reference Day up to the rolling effected as of the opening of the market on the first notice date, (y) the weighted performance of the second nearby 10Y U.S. Treasury Futures Contracts from the 10Y UST Futures Last Reference Day up to the rolling effected as of the opening of the market on such first notice date and (z) the performance of the second nearby 10Y U.S. Treasury Futures Contracts, including the second nearby contracts into which any remaining portion of the first nearby 10Y U.S. Treasury Futures Contracts are rolled over on such first notice date, calculated based on the opening price and the official daily settlement price of the second nearby 10Y U.S. Treasury Futures Contracts on such first notice date (for the avoidance of doubt, if the official daily settlement price of the second nearby 10Y U.S. Treasury Futures Contracts is not published or is otherwise unavailable on such first notice date, then the Calculation Agent will not calculate any value for the 10Y UST Futures Position but will use the last available asset value),

*and*

- (ii) the overnight interest rate for the calculation period.

The formulae for the calculation of the 10Y UST Futures Position are presented below. Investors, however, should be aware that these formulae do not reflect the alternative rolling and

calculation methodologies applied when the value of 10Y U.S. Treasury Futures Contracts is not published or is otherwise unavailable (as further described above).

$$A_{10Y,t}^{FI} = (r_{10Y,t} + \frac{i_{t-n}}{360} \times n) \times A_{10Y,t-n}^{FI}$$

$$r_{10Y,t} = \frac{CP_{10Y,1,t}}{CP_{10Y,1,t-n}} \text{ when NOT in the 3 - day rolloing period}$$

$$r_{10Y,t} = \left(1 - \frac{m-1}{3}\right) \times \frac{CP_{10Y,1,t}}{CP_{10Y,1,t-n}} + \frac{m-1}{3} \times \frac{CP_{10Y,2,t}}{CP_{10Y,2,t-n}} \text{ when on the } m^{\text{th}} \text{ day of the roll period,}$$

$m=1,2,3$

Where:

Subscript  $(t)$  refers to the given Asset Business day;

Subscript  $(t-n)$  refers to the Asset Business Day immediately preceding Asset Business Day $(t)$ ;

$A_{10Y,t}^{FI}$  refers to the Underlying Asset Value of 10Y UST Futures Position as of the Asset Business Day $(t)$ ;

$A_{10Y,t-n}^{FI}$  refers to the Underlying Asset Value of 10Y UST Futures Position as of the immediately preceding Asset Business Day  $(t-n)$ ;

$i_{t-n}$  refers to the overnight interest rate as of date  $(t-n)$ ;

$n$  refers to the number of actual calendar days between  $t$  and the immediately preceding Asset Business Day  $(t-n)$ ;

$r_{10Y,t}$  refers to the daily price return of the value of the 10Y U.S. Treasury Futures Contracts on  $t$ ;

$CP_{10Y,1,t}$  refers to the 10Y U.S. Treasury Futures Contracts Valuation Price of the first nearby 10Y U.S. Treasury Futures Contracts on  $t$ ; provided that, for the avoidance of doubt, once the rolling has been effected in accordance with the above roll methodology and there is no remaining amount to be rolled, the first nearby 10Y U.S. Treasury Futures Contracts shall mean the 10Y U.S. Treasury Futures Contracts into which the notional investment has been rolled; and  $CP_{10Y,2,t}$  refers to the 10Y U.S. Treasury Futures Contracts Valuation Price of the second nearby 10Y U.S. Treasury Futures Contracts on  $t$ .

### ***10-Year U.S. Treasury Note Futures Contracts***

The 10-Year U.S. Treasury Note futures contracts underlying the 10Y UST Futures Position are three-month contracts to buy or sell standardized trading “units”. One trading unit of 10-Year U.S. Treasury Note futures contracts equals one 10-Year U.S. Treasury note with a face value of \$100,000 or a multiple thereof. The 10-Year U.S. Treasury Note futures contract closest to expiration at any given time is known as the “first nearby” futures contract.

**10-Year U.S. Treasury Notes:** 10-Year U.S. Treasury notes are notes issued by the U.S. government with a ten-year maturity. U.S. Treasury notes are sold in increments of \$100. The price and interest rate of a note are determined at auction. The price may be greater than, less than or equal to the note’s par amount.

### ***Adjustments to the 10Y UST Futures Position***

Investors should be aware that if the terms of the 10Y U.S. Treasury Futures Contracts are modified, the Index Sponsor may take such steps as it considers appropriate in response to such modification.

#### ***5.3. If the Underlying Asset is 2Y UST Futures Position***

The 2Y UST Futures Position tracks a synthetic exposure to the total return (including income from interest) of the first nearby 2-Year U.S. Treasury Note futures contracts (the “**2Y U.S. Treasury Futures Contracts**”). 2Y U.S. Treasury Futures Contracts are currently listed for trading on the Chicago Board of Trade. For more details on the 2Y U.S. Treasury Futures Contracts and 2-Year U.S. Treasury notes, please see below the section entitled “*2-Year U.S. Treasury Note Futures Contracts*”.

#### ***Daily Value Calculation***

The 2Y UST Futures Position is a U.S. dollar denominated component and is calculated on each day on which the Chicago Board of Trade is open for trading (such day, an “**Asset Business Day**”). The value of the 2Y UST Futures Position on any given Asset Business Day will be calculated as the product of (i) the value of the 2Y UST Futures Position as of the immediately preceding Asset Business Day and (ii) the sum of (x) the daily return ratio of the value of the 2Y U.S. Treasury Futures Contracts on such day and (y) the overnight interest rate for the calculation period.

**Daily Return Ratio of the Value of the 2Y U.S. Treasury Futures Contracts:** On any given Asset Business Day (other than during the roll period as described below), the daily return ratio of the value of 2Y U.S. Treasury Futures Contracts is calculated as the *quotient* of (a) the 2Y U.S. Treasury Futures Contract Valuation Price (as described below) on the relevant Asset Business Day and (b) the 2Y U.S. Treasury Futures Contract Valuation Price on the immediately preceding Asset Business Day. During the roll period, the calculation of the daily return ratio of 2Y U.S. Treasury Futures Contracts will reflect the price of the second nearby 2Y U.S. Treasury Futures Contracts into which the first nearby 2Y U.S. Treasury Futures Contracts are gradually rolled over.

**2Y U.S. Treasury Futures Contracts Valuation Price:** The 2Y U.S. Treasury Futures Contracts Valuation Price on any given Asset Business Day means the official daily settlement price per 2Y U.S. Treasury Futures Contract quoted by the CBOT on such Asset Business Day.

**Overnight Interest Rate:** The interest rate calculation uses the overnight interest rate as published on Global Insight DRI page USD-FEDERAL-FUNDS-H15 and the ACT/360 day count fraction, as defined in the 2006 ISDA Definitions. If the overnight interest rate is not published or is otherwise unavailable for the applicable calculation period, then the last available overnight interest rate published on such page will be used as the overnight interest rate for such calculation period.

The Calculation Agent will, however, not calculate the daily asset value or will calculate such value pursuant to a different methodology when at any given time the 2Y U.S. Treasury Futures



Contracts Valuation Prices for the first nearby 2Y U.S. Treasury Futures Contracts and/or the second nearby 2Y U.S. Treasury Futures Contracts, as applicable, are not published or are otherwise unavailable as further described below.

### ***Roll Methodology***

As 2Y U.S. Treasury Futures Contracts have a quarterly expiration period (March, June, September or December), when the first nearby 2Y U.S. Treasury Futures Contracts come to expiration, they are replaced by the second nearby 2Y U.S. Treasury Futures Contracts. For example, a 2Y U.S. Treasury Futures Contract purchased and held in May may specify a June expiration. As time passes, the contract expiring in June is replaced by a 2Y U.S. Treasury Futures Contract for delivery in September. This process is referred to as “rolling”.

**Roll Period:** Rolling will be carried out during the three Asset Business Days starting from, and including, the third last Asset Business Day prior to the first notice date of the first nearby 2Y U.S. Treasury Futures Contracts to, and including, the last Asset Business Day prior to the first notice date of such 2Y U.S. Treasury Futures Contracts. Such period is referred to from time to time as the “roll period”. On each Asset Business Day of the roll period, one third of the notional investment in the first nearby 2Y U.S. Treasury Futures Contracts will be rolled into the second nearby 2Y U.S. Treasury Futures Contracts, and the prices at which 2Y U.S. Treasury Futures Contracts are rolled will be based on the 2Y U.S. Treasury Futures Contracts Valuation Price for each of the first nearby and second nearby 2Y U.S. Treasury Futures Contracts. Rolling will, however, be carried out pursuant to a different methodology when at any time during the roll period the 2Y U.S. Treasury Futures Contracts Valuation Prices for one or both of the first nearby and second nearby 2Y U.S. Treasury Futures Contracts are not published or are otherwise unavailable as further described below.

### ***Price of 2Y U.S. Treasury Futures Contracts Unavailable***

**Unavailable Outside of the Roll Period:** If, on any Asset Business Day that does not fall within the roll period, the 2Y U.S. Treasury Futures Contracts Valuation Price for the first nearby 2Y U.S. Treasury Futures Contracts is not published or is otherwise unavailable, then the Calculation Agent will not calculate any value for the 2Y UST Futures Position but will use the last available asset value.

If, on the immediately following Asset Business Day, the 2Y U.S. Treasury Futures Contracts Valuation Price for the first nearby 2Y U.S. Treasury Futures Contracts is available, the daily return ratio of the value of the 2Y U.S. Treasury Futures Contracts will be calculated as the *quotient* of (a) the 2Y U.S. Treasury Futures Contracts Valuation Price on that Asset Business Day and (b) the last available 2Y U.S. Treasury Futures Contracts Valuation Price (however, for the avoidance of doubt, if such Asset Business Day is the first day of the roll period and the 2Y U.S. Treasury Futures Contracts Valuation Price for the second nearby 2Y U.S. Treasury Futures Contracts is not published or is otherwise unavailable on that Asset Business Day, then, as further described below, the Calculation Agent will not calculate any value for the 2Y UST Futures Position but will use the last available asset value).

**Unavailable Within the Roll Period:** If the 2Y U.S. Treasury Futures Contracts Valuation Price for one or both of the first nearby and second nearby 2Y U.S. Treasury Futures Contracts is not published or is otherwise unavailable at any time during the roll period, then rolling will be carried out pursuant to the following alternative rolling methodology:

- **Case 1:** If the 2Y U.S. Treasury Futures Contracts Valuation Price for one or both of the first nearby and second nearby 2Y U.S. Treasury Futures Contracts is not published or is otherwise unavailable on the first Asset Business Day of the roll period, then one half of the notional investment in the first nearby 2Y U.S. Treasury Futures Contracts will be rolled into the second nearby 2Y U.S. Treasury Futures Contracts on the second Asset Business Day of the roll period if the 2Y U.S. Treasury Futures Contracts Valuation Prices for both the first nearby and second nearby 2Y U.S. Treasury Futures Contracts are available on such second Asset Business Day, and the second half of the notional investment in the first nearby 2Y U.S. Treasury Futures Contracts will be rolled over into the second nearby 2Y U.S. Treasury Futures Contracts on the third Asset Business Day of the roll period if the 2Y U.S. Treasury Futures Contracts Valuation Prices for both the first nearby and second nearby 2Y U.S. Treasury Futures Contracts are available on such third Asset Business Day; however, if the 2Y U.S. Treasury Futures Contracts Valuation Price for one or both of the first nearby and second nearby 2Y U.S. Treasury Futures Contracts is not published or is otherwise unavailable on such third Asset Business Day, then rolling of any remaining portion of the notional investment in the first nearby 2Y U.S. Treasury Futures Contracts will be carried out as set out below in respect of Case 4.
- **Case 2:** If the 2Y U.S. Treasury Futures Contracts Valuation Price for one or both of the first nearby and second nearby 2Y U.S. Treasury Futures Contracts is not published or is otherwise unavailable on both of the first and second Asset Business Days of the roll period, then the entire notional investment in the first nearby 2Y U.S. Treasury Futures Contracts will be rolled into the second nearby 2Y U.S. Treasury Futures Contracts on the third Asset Business Day of the roll period; however, if the 2Y U.S. Treasury Futures Contracts Valuation Price for one or both of the first nearby and second nearby 2Y U.S. Treasury Futures Contracts is not published or is otherwise unavailable on such third Asset Business Day, then rolling of any remaining portion of the notional investment in the first nearby 2Y U.S. Treasury Futures Contracts will be carried out as set out below in respect of Case 4.
- **Case 3:** If the 2Y U.S. Treasury Futures Contracts Valuation Price for both of the first nearby and second nearby 2Y U.S. Treasury Futures Contracts is available on the first Asset Business Day of the roll period, on which one third of the notional investment in the first nearby 2Y U.S. Treasury Futures Contracts is rolled over into the second nearby 2Y U.S. Treasury Futures Contracts, but the 2Y U.S. Treasury Futures Contracts Valuation Price for one or both of the first nearby and second nearby 2Y U.S. Treasury Futures Contracts is not published or is otherwise unavailable on the second Asset Business Day of the roll period, then the remaining two thirds of the notional investment in the first nearby 2Y U.S. Treasury Futures Contracts will be rolled into the second nearby 2Y U.S. Treasury Futures Contracts on the third Asset Business Day of the roll period; however, if the 2Y U.S. Treasury Futures Contracts Valuation Price for one or both of the first nearby and second nearby 2Y U.S. Treasury Futures Contracts is not published or is otherwise unavailable on such third Asset Business Day, then rolling of any remaining portion of the notional investment in the first

nearby 2Y U.S. Treasury Futures Contracts will be carried out as set out below in respect of Case 4.

- **Case 4:** In any situation where the 2Y U.S. Treasury Futures Contracts Valuation Price for one or both of the first nearby and second nearby 2Y U.S. Treasury Futures Contracts is not published or is otherwise unavailable on the third Asset Business Day of the roll period (including where such price is not published or is otherwise unavailable on both of the first and third Asset Business Days of the roll period only, both of the second and third Asset Business Days of the roll period only or all of the three Asset Business Days of the roll period), then any remaining amount of the notional investment in the first nearby 2Y U.S. Treasury Futures Contracts will be rolled into the second nearby 2Y U.S. Treasury Futures Contracts on the first notice date, which is the Asset Business Day immediately following the third Asset Business Day of the roll period. On such first notice date, rolling will be effected by using the first traded prices for the first nearby 2Y U.S. Treasury Futures Contracts and the second nearby 2Y U.S. Treasury Futures Contracts, provided that if, on such first notice date, the first traded price for the first nearby 2Y U.S. Treasury Futures Contracts and/or the second nearby 2Y U.S. Treasury Futures Contracts is not published or is otherwise unavailable, then the first nearby 2Y U.S. Treasury Futures Contracts will be sold at the Valuation Price for such first nearby 2Y U.S. Treasury Futures Contracts on the 2Y UST Futures Last Reference Day (as defined below) and the second nearby 2Y U.S. Treasury Futures Contracts will be bought at the Valuation Price for such second nearby 2Y U.S. Treasury Futures Contracts on the 2Y UST Futures Last Reference Day.

On any given Asset Business Day on which rolling does not occur because the 2Y U.S. Treasury Futures Contracts Valuation Price for one or both of the first nearby and second nearby 2Y U.S. Treasury Futures Contracts is not published or is otherwise unavailable (such day, a “**2Y UST Futures No-roll Asset Business Day**”); for the avoidance of doubt, a 2Y UST Futures No-roll Asset Business Day may include any Asset Business Day of the roll period, as the case may be), the Calculation Agent will not calculate any value for the 2Y UST Futures Position but will use the last available asset value.

If, on any Asset Business Day immediately following such 2Y UST Futures No-roll Asset Business Day, the 2Y U.S. Treasury Futures Contracts are rolled over pursuant to the alternative methodology described above, then the Calculation Agent will apply alternative calculation methods to compute the level of the 2Y UST Futures Position on such Asset Business Day, which can be summarized as follows:

On such Asset Business Day, the level of the 2Y UST Futures Position will be computed as the *product* of:

- the value of the 2Y UST Futures Position as of the last Asset Business Day on which the Valuation Prices for both of the first nearby and second nearby 2Y U.S. Treasury Futures Contracts were available (such day, the “**2Y UST Futures Last Reference Day**”); and
- the *sum* of:
  - (i) the *daily return ratio* reflecting either:

- (a) if such Asset Business Day falls within the roll period, the weighted performance of the first nearby 2Y U.S. Treasury Futures Contracts and the weighted performance of the second nearby 2Y U.S. Treasury Futures Contracts from the 2Y UST Futures Last Reference Day to such Asset Business Day; or
- (b) if such Asset Business Day is a first notice date, the *product* of (x) the weighted performance of the first nearby 2Y U.S. Treasury Futures Contracts from the 2Y UST Futures Last Reference Day up to the rolling effected as of the opening of the market on the first notice date, (y) the weighted performance of the second nearby 2Y U.S. Treasury Futures Contracts from the 2Y UST Futures Last Reference Day up to the rolling effected as of the opening of the market on such first notice date and (z) the performance of the second nearby 2Y U.S. Treasury Futures Contracts, including the second nearby contracts into which any remaining portion of the first nearby 2Y U.S. Treasury Futures Contracts are rolled over on such first notice date, calculated based on the opening price and the official daily settlement price of the second nearby 2Y U.S. Treasury Futures Contracts on such first notice date (for the avoidance of doubt, if the official daily settlement price of the second nearby 2Y U.S. Treasury Futures Contracts is not published or is otherwise unavailable on such first notice date, then the Calculation Agent will not calculate any value for the 2Y UST Futures Position but will use the last available asset value),

*and*

- (ii) the overnight interest rate for the calculation period.

The formulae for the calculation of the 2Y UST Futures Position are presented below. Investors, however, should be aware that these formulae do not reflect the alternative rolling and calculation methodologies applied when the value of 2Y U.S. Treasury Futures Contracts is not published or is otherwise unavailable (as further described above).

$$A_{2Y,t}^{FI} = (r_{2Y,t} + \frac{i_{t-n}}{360} \times n) \times A_{2Y,t-n}^{FI}$$

$$r_{2Y,t} = \frac{CP_{2Y,1,t}}{CP_{2Y,1,t-n}} \text{ when NOT in the 3 - day rolloing period}$$

$$r_{2Y,t} = \left(1 - \frac{m-1}{3}\right) \times \frac{CP_{2Y,1,t}}{CP_{2Y,1,t-n}} + \frac{m-1}{3} \times \frac{CP_{2Y,2,t}}{CP_{2Y,2,t-n}} \text{ when on the } m^{\text{th}} \text{ day of the roll period, } m=1,2,3$$

Where:

Subscript <sub>(t)</sub> refers to the given Asset Business day;

Subscript <sub>(t-n)</sub> refers to the Asset Business Day immediately preceding Asset Business Day<sub>(t)</sub>;

$A_{2Y,t}^{FI}$  refers to the Underlying Asset Value of 2Y UST Futures Position as of the Asset Business Day<sub>(t)</sub>;

$A_{2Y,t-n}^{FI}$  refers to the Underlying Asset Value of 2Y UST Futures Position as of the immediately preceding Asset Business Day  $(t - n)$ ;

$i_{t-n}$  refers to the overnight interest rate as of date  $(t - n)$ ;

$n$  refers to the number of actual calendar days between  $t$  and the immediately preceding Asset Business Day  $(t - n)$ ;

$r_{2Y,t}$  refers to the daily price return of the value of the 2Y U.S. Treasury Futures Contracts on  $t$ ;

$CP_{2Y,1,t}$  refers to the 2Y U.S. Treasury Futures Contracts Valuation Price of the first nearby 2Y U.S. Treasury Futures Contracts on  $t$ ; provided that, for the avoidance of doubt, once the rolling has been effected in accordance with the above roll methodology and there is no remaining amount to be rolled, the first nearby 2Y U.S. Treasury Futures Contracts shall mean the 2Y U.S. Treasury Futures Contracts into which the notional investment has been rolled; and

$CP_{2Y,2,t}$  refers to the 2Y U.S. Treasury Futures Contracts Valuation Price of the second nearby 2Y U.S. Treasury Futures Contracts on  $t$ .

### ***2-Year U.S. Treasury Note Futures Contracts***

The 2-Year U.S. Treasury Note futures contracts underlying the 2Y UST Futures Position are three-month contracts to buy or sell standardized trading “units”. One trading unit of 2-Year U.S. Treasury Note futures contracts equals one 2-Year U.S. Treasury note with a face value of \$200,000 or a multiple thereof. The 2-Year U.S. Treasury Note futures contract closest to expiration at any given time is known as the “first nearby” futures contract.

**2-Year U.S. Treasury Notes:** 2-Year U.S. Treasury notes are notes issued by the U.S. government with a two-year maturity. U.S. Treasury notes are sold in increments of \$100. The price and interest rate of a note are determined at auction. The price may be greater than, less than or equal to the note’s par amount.

### ***Adjustments to the 2Y UST Futures Position***

Investors should be aware that if the terms of the 2Y U.S. Treasury Futures Contracts are modified, the Index Sponsor may take such steps as it considers appropriate in response to such modification.

## Historical Data

The “**Launch Date**” for the Index, which is the date the Calculation Agent began calculating the Index, is specified in the Annex. Therefore, historical information provided for the period from the Index Base Date until the Launch Date, is hypothetical and is provided as an illustration of how the Index would have performed during the period had the Calculation Agent begun calculating the Index on the Index Base Date using the Methodology. This data does not reflect actual performance, nor was a contemporaneous investment model run of the Index. Historical information for the period from and after the Launch Date is based on the actual performance of the Index.

Historical levels of the Index are calculated with reference to the Reference Level of the Underlying Assets determined based on the latest available data published by the relevant exchanges (as specified in the Annex).

## Market Disruption Events

A “**Market Disruption Event**” may be deemed by the Index Committee to have occurred in any of the following situations:

- (i) The official closing price, level, rate or other measure of any Underlying Asset 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 a material Exchange Disruption (as determined by the Calculation Agent);
- (iii) upon the occurrence or existence of a Trading Disruption, for more than two hours of trading, or at any time during the one-hour period that ends at the scheduled closing time of the relevant Exchange;
- (iv) the net asset value per share of an Underlying ETF is not calculated or is not announced by the Underlying ETF or the sponsor of such Underlying ETF and such event has a material impact on the Index as determined by the Index Sponsor;
- (v) the ETF or the relevant sponsor of any Underlying ETF suspends creations or redemptions of shares of such Underlying ETF and such event has a material impact on the Index as determined by the Index Sponsor;
- (vi) upon the occurrence or existence of an Index Dislocation;
- (vii) upon the occurrence or existence of a Force Majeure Event; or
- (viii) upon the occurrence or existence of an Interest Rate Disruption Event.

A “**Trading Disruption**” means:

- (i) with respect to an Underlying ETF, 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 ETF shares, related Reference Index or futures or options on the Underlying ETF shares or Reference Index; or
- (ii) with respect to an Underlying Asset that is not an Underlying ETF, any suspension of or limitation imposed on trading by the relevant Exchange, and whether by reason of movements in price exceeding limits permitted by the relevant reference exchange or otherwise, relating to any component of such Underlying Asset.

An “**Exchange Disruption**” means:

- (i) with respect to an Underlying ETF, any event that disrupts or impairs (as determined by the Calculation Agent in consultation with the Index Committee) the ability of market participants in general to effect transactions in, or obtain market values for, the shares of the Underlying ETF on the relevant Exchange or futures or options on the Underlying ETF shares or Reference Index, in each case on the relevant Related Exchange; or
- (ii) with respect to an Underlying Asset that is not an Underlying ETF, any event that disrupts or impairs (as determined by the Calculation Agent in consultation with the Index Committee) the ability of market participants in general to effect transactions in, materially increases the costs of transacting in, or obtain market values for, any Underlying Asset or its underlying constituents on the relevant Exchange.

“**Exchange**” means:

- (i) with respect to an Underlying ETF, the primary exchange on which shares of such Underlying ETF are listed; or
- (ii) with respect to an Underlying Asset that is not an Underlying ETF, the relevant exchanges on which the components of such Underlying Asset are traded as set forth in the Annex

“**Related Exchange**” means, in respect of an Underlying ETF or Reference Index, 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 ETF or Reference Index, as the case may be, are traded, if any.

An “**Index Dislocation**” means the Calculation Agent (in consultation with the Index Committee) determines that a market participant, as a result of a market-wide condition relating to the Index or any Underlying Asset 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 or an Index Constituent, or (ii) incur a materially increased cost in doing so, including due to any capital requirements or other law or regulation.

A “**Force Majeure Event**” means the Calculation Agent 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 Index Sponsor, Calculation Agent or any of their relevant affiliates that the Calculation Agent determines is likely to have a material effect on an Underlying Asset, or on its ability to perform its role in respect of the Index.

“**Interest Rate Disruption Event**” means (and an Interest Rate Disruption Event shall be deemed to have occurred if), in respect of the Notional Interest Rate and a relevant day:

- (a) such Notional Interest Rate is not published on a date on which it is scheduled for publication; or
- (b) such Notional Interest Rate is no longer published.

On any New York business day on which a Market Disruption Event occurs or is continuing, the Calculation Agent shall postpone calculation of the Index Value to the next Index Business Day, and an indicative level for the Index may be published. Such level will be identified as a “disrupted indicative level.” The Calculation Agent shall resume calculating and publishing the Index Value for the first Index Business Day on which no Market Disruption Event is occurring or continuing, as determined by the Index Committee. The Calculation Agent, in consultation with the Index Committee, may use the Notional Interest Rate in effect prior to such market disruption during the period of any market disruption event in respect of the Notional Interest Rate. On the sixth New York business day following the occurrence of a Market Disruption Event in respect of any Underlying Assets, if such Market Disruption Event is continuing and the affected Underlying Assets have not been removed from the Index, the Index Committee may determine in its sole discretion to instruct the Calculation Agent to calculate the Index, using a price for such Underlying Assets as determined by the Index Committee in its sole discretion. In the event the Index Committee determines on such sixth New York business day, in its sole discretion, that no such instructions should be given to the Calculation Agent, the Index Committee may revisit such determination on any New York business day thereafter on which the Market Disruption Event is continuing.

### Potential Adjustment Events

In the event that an Underlying ETF is affected by a “**potential adjustment event**”, the Calculation Agent may make adjustments to the level of such Underlying ETF and/or the quantities of the Underlying ETF if it determines that the event could have a diluting or concentrative effect on the theoretical value of the Underlying ETF shares and would not otherwise be accounted for in the Index. Table 1 below describes the potential adjustment events for which adjustments may be made by the Calculation Agent.

**Table 1. Potential Adjustment Events.**

Potential Adjustment Event	Adjustment	Adjustment Description
Cash Dividends	Yes	The Dividend is reinvested in



		that Underlying ETF.
Special / Extraordinary Dividends	Yes	The Dividend is reinvested in that Underlying ETF.
Return on Capital	Yes	The Dividend is reinvested in that 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.

For potential adjustment events not listed in the table above, the Calculation Agent may make adjustments if it determines that the event could have a diluting or concentrative effect on the theoretical value of the Underlying ETF shares 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 the Calculation Agent determines that the price made available for an Underlying Asset (or the published level of a 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 in respect of an Underlying Asset is not made available on a timely basis, or in the event that the price made available for an Underlying Asset is subsequently corrected and such correction is published, then the Calculation Agent may, if practicable, adjust or correct the relevant calculation or determination, including the level of the Underlying Asset, as of any Index Business Day to take into account such correction.

On any Index Business Day during which the price, level or rate of an Underlying Asset reflects such an error (and such error has not been corrected), the Underlying Equity Asset Weights, Equity Basket Weight and Fixed Income Asset Weights will be calculated using the price, level or rate made available by the relevant Exchange of the Reference Level of such Underlying

Asset (notwithstanding any manifest error). If the relevant Exchange subsequently corrects the price it has made available, the Index Value may be calculated using such corrected price, but the quantities of Underlying Assets implied by the Underlying Equity Asset Weights, the Equity Basket Weight and Fixed Income Asset Weights (prior to the error being corrected) may or may not be adjusted by the Index Committee.

### **Changes to the Index Constituents**

The designated Underlying Assets of the Index and the Notional Interest Rate (or a stock, government bond instrument or other market measure underlying such Underlying Assets, or option or futures contract related thereto, which the Index Committee determines is necessary to effectively replicate its performance) (collectively, the “**Index Constituents**” and each an “**Index Constituent**”), are not expected to be changed or replaced. However, if the Index Committee determines that any of the following events has occurred:

- an Underlying ETF ceases to exist, is delisted, terminated, wound up, liquidated or files for bankruptcy, is combined with another ETF that has a different investment objective, or changes its currency of denomination;
- an Underlying ETF suspends creations or redemptions for five consecutive Index Business Days or announces a suspension of unlimited or unspecified duration for such creations or redemptions;
- the net asset value of an Underlying ETF is not calculated or is not announced by either the Underlying ETF or its sponsor for five consecutive Index Business Days, or a Market Disruption Event occurs and is continuing for five consecutive Index Business Days;
- there has been a material diminution in the daily trading volume of an Underlying ETF or the net asset value of such Underlying ETF (where net asset value is measured as the value of an entity’s assets less the value of its liabilities as publicly disclosed by the Underlying ETF or its sponsor);
- the sponsor or investment adviser of an Underlying ETF files for bankruptcy and there is no solvent immediate successor;
- limitations on ownership are imposed on an Underlying ETF due, amongst others, to a change in law or regulation, loss of regulatory exemptive relief or otherwise, and the Index Committee, in its sole discretion, determines that such limitations materially adversely affect the ability of holders of such Underlying ETF to hold, acquire or dispose of shares of such Underlying ETF;
- the tax treatment of an Underlying ETF changes in a way that would have a material adverse effect on holders of shares of such Underlying ETF;
- there has been a material change to the expense ratio or fee structure of such Underlying ETF that is adverse to holders of shares of such Underlying ETF;

- the Index Committee, in its sole discretion, determines that an Underlying ETF has changed the index underlying or otherwise referenced by such Underlying ETF (the “**Reference Index**” for such Underlying ETF) to an index that is materially different, or the methodology for the Reference Index is materially modified (other than a modification in the ordinary course of administration of the Reference Index);
- the Reference Index of an Underlying ETF is no longer compiled, or the closing level of such Reference Index is not calculated or published for five consecutive Index Business Days;
- the Index Sponsor determines in its sole discretion that it is not practicable for an Underlying ETF to continue to be included in the Index for any reason, including due to
  - a) a dispute as to whether a license is required to use the Underlying ETF or the related Reference Index, or
  - b) to the extent there is an agreement in place governing such use, changes in the terms upon which an Underlying ETF or related Reference Index is made available to the Index Sponsor for inclusion in the Index that the Index Sponsor, in its sole discretion, determines to be materially adverse to it;
- the ETF Sponsor in respect of an Underlying ETF or the Relevant Exchange (as described in the Annex under “*Overview of Underlying Assets*”) of an Underlying Asset announces that it will make a material change in the formula for or the method of calculating such Underlying Asset (or the selection of the components thereof) or otherwise materially modifies such Underlying Asset (or the selection of the components thereof) for the purpose of maintaining such Underlying Asset;
- an Underlying ETF is no longer published by its ETF Sponsor in respect of an Underlying ETF or the Relevant Exchange;
- an Underlying Asset, its constituents or derivative instruments linked thereto, are no longer tradable on commercially reasonable terms (as determined by the Calculation Agent in consultation with the Index Committee) in light of changes to financial market conditions (including market liquidity), regulatory or similar factors;
- the Index Sponsor and its affiliates cease to have the relevant data license in respect of an Underlying Asset; or
- the Notional Interest Rate ceases to exist,

then the affected Underlying Asset will be replaced by a successor constituent that, in the determination of the Index Committee in its sole discretion, most closely replicates, in the case of an index, the constituents and method of calculation of the Underlying Asset, or, in respect of a successor interest rate, most closely captures the relevant market measure and satisfies any other criteria of an effective benchmark identified by the Index Committee, and the Index Sponsor may use such constituent as a successor Index Constituent. If the Index Committee

determines in its sole discretion that no successor constituent exists, such Underlying Asset will be removed from the Index.

Such deletions and substitutions may be undertaken on any date. The effective date will be determined at the discretion of the Index Committee and may be applied retroactively (although the Index Committee will seek to announce any such deletions or substitutions as promptly as is reasonably practicable), and will be reflected in an updated version of this Methodology. The Index Committee may permit the use of a temporary Underlying Asset until a permanent successor Underlying Asset is identified.

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

Changes to the components of the Index made by the Calculation Agent or, in certain cases, the Index Committee, will be publicly announced as promptly as is reasonably practicable and normally at least five New York business days prior to the effective date of the changes. Changes to the Methodology made by the Index Committee will be publicly announced at least 60 New York business days prior to their effective date. Adjustments made by the Calculation Agent in response to market adjustment events and potential adjustment events will be publicly announced as promptly as is reasonably practicable. Notwithstanding the foregoing, the Index Committee may modify the Index (including its composition), the Methodology or any data obtained from a third party, in its sole discretion and without notice to correct any manifest error, or to cure or correct any ambiguity, contradiction or defect, in the description or operation of the Index.

### **Licensing Information**

Goldman Sachs International as the Index Sponsor, or one of its affiliates, is the licensing agent for the Index. Questions about licensing the Index can be directed to the group listed under “Contact Information” below.

### **Contact Information**

*STS Group*

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### **Calculation Agent Website**

<http://www.solactive.com/>

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## Annex

Index Value Publication Precision	2 decimal places with 0.005 rounded upwards
Index Base Date	July 15, 2013
Target Portfolio Volatility Base Date	January 16, 2013
Equity Basket Base Date	January 15, 2013
Fixed Income Asset Base Date	January 3, 2012
Underlying Asset Base Date	January 3, 2012
Launch Date	August 7, 2020
Index Bloomberg Ticker	GSMARINR Index
Index Reuters Ticker	.GSMARINR
Index Business Day	Each day which is an Asset Business Day for all of the Underlying Assets and on which no Market Disruption Event occurs or is continuing, and such day is not denoted as “Recommended Close” or as “Recommended Early Close” for the U.S. by the Securities Industry and Financial Markets Association on <a href="http://www.sifma.org/Services/Holiday-Schedule/">http://www.sifma.org/Services/Holiday-Schedule/</a> (or any successor page)
Equity Basket Business Day	Each day which is an Asset Business Day for all of the Underlying Equity Assets and on which no Market Disruption Event occurs or is continuing
Notional Interest Rate	USD-FEDERAL-FUNDS-H15 (as provided by Reuters on page FEDFUNDS1 or by another recognized source used for the purpose of displaying such rate).  For any given calendar day which is not a scheduled publication day for the Notional Interest Rate, the Calculation Agent will use for such calendar day the Notional Interest Rate for the scheduled publication day immediately preceding such calendar day.
Notional Interest Rate Reset Day	Each day which is a New York business day
Day Count Convention	Actual/360, meaning the number of days in the relevant period divided by 360.
Volatility Target	5%
Leverage Cap	100%

Deduction Rate	0.50% per annum
Long-term Parameter (“LT”)	Long-term Decay Factor = 0.97
Short-term Parameter (“ST”)	Short-term Decay Factor = 0.94
Rebalance Lag	1

## Overview of Underlying Assets

<b>Underlying Asset</b>	<b>Class Type</b>	<b>Asset Business Day</b>	<b>Bloomberg Ticker / Root Ticker</b>	<b>Reference Level</b>	<b>Additional Information</b>
Materials Select Sector SPDR Fund	Equity	Each day on which the New York Stock Exchange is open for the regular trading session	XLB UP Equity*	Closing price as reported on NYSE Arca, or its successor*	www.spdrs.com
Energy Select Sector SPDR Fund	Equity	Each day on which the New York Stock Exchange is open for the regular trading session	XLE UP Equity*	Closing price as reported on NYSE Arca, or its successor*	www.spdrs.com
Financial Select Sector SPDR Fund	Equity	Each day on which the New York Stock Exchange is open for the regular trading session	XLF UP Equity*	Closing price as reported on NYSE Arca, or its successor*	www.spdrs.com
Industrial Select Sector SPDR Fund	Equity	Each day on which the New York Stock Exchange is open for the regular trading session	XLI UP Equity*	Closing price as reported on NYSE Arca, or its successor*	www.spdrs.com
Technology Select Sector SPDR Fund	Equity	Each day on which the New York Stock Exchange is open for the regular trading session	XLK UP Equity*	Closing price as reported on NYSE Arca, or its successor*	www.spdrs.com
Consumer Staples Select Sector SPDR Fund	Equity	Each day on which the New York Stock Exchange is open for the regular trading session	XLP UP Equity*	Closing price as reported on NYSE Arca, or its successor*	www.spdrs.com
Utilities Select Sector SPDR Fund	Equity	Each day on which the New York Stock Exchange is open for the regular trading session	XLU UP Equity*	Closing price as reported on NYSE Arca, or its successor*	www.spdrs.com
Health Care Select Sector SPDR Fund	Equity	Each day on which the New York Stock Exchange is open for the regular trading session	XLV UP Equity*	Closing price as reported on NYSE Arca, or its successor*	www.spdrs.com



<b>Underlying Asset</b>	<b>Class Type</b>	<b>Asset Business Day</b>	<b>Bloomberg Ticker / Root Ticker</b>	<b>Reference Level</b>	<b>Additional Information</b>
Consumer Discretionary Select Sector SPDR Fund	Equity	Each day on which the New York Stock Exchange is open for the regular trading session	XLY UP Equity*	Closing price as reported on NYSE Arca, or its successor*	www.spdrs.com
10Y UST Futures Position	Fixed Income	Each day on which the Chicago Board of Trade is open for its regular trading session	Not applicable  (Bloomberg Root Ticker of the futures contracts is TY)	Determined as described in methodology based on futures settlement prices of US Treasury Note, 10Yr as reported on Chicago Board of Trade, or its successor	www.cmegroup.com
2Y UST Futures Position	Fixed Income	Each day on which the Chicago Board of Trade is open for its regular trading session	Not applicable  (Bloomberg Root Ticker of the futures contracts is TU)	Determined as described in methodology based on futures settlement prices of US Treasury Note, 2Yr as reported on Chicago Board of Trade, or its successor	www.cmegroup.com

\* With respect to the Underlying ETFs, prior to November 7, 2008, the Bloomberg Ticker exchange codes were UA and the Reference Levels used for the calculation of the Reinvested Level were the closing price as reported on NYSE American or its successor.

## Equity Basket Constraints Schedule

### Investment Constraints in the Equity Basket

<b>Underlying Equity Asset</b>	<b>Underlying Equity Asset Minimum Weight</b>	<b>Underlying Equity Asset Maximum Weight</b>
Materials Select Sector SPDR Fund	0%	20%
Energy Select Sector SPDR Fund	0%	20%
Financial Select Sector SPDR Fund	0%	20%
Industrial Select Sector SPDR Fund	0%	20%
Technology Select Sector SPDR Fund	0%	20%
Consumer Staples Select Sector SPDR Fund	0%	20%
Utilities Select Sector SPDR Fund	0%	20%
Health Care Select Sector SPDR Fund	0%	20%
Consumer Discretionary Select Sector SPDR Fund	0%	20%

## **CERTAIN RISK FACTORS AND ADDITIONAL INFORMATION ABOUT THE INDEX**

*Please note: This “Certain Risk Factors and Additional Information about the Index” section is intended to summarize certain risks associated with the Index, but does not purport to be exhaustive, nor should it be regarded as offering advice on the advisability of investing in products that may be linked to the Index or the investment strategy underlying the Index. You should also read any relevant documentation, such as any prospectuses, term sheets or offering memoranda, which may highlight further risks particular to such products, or arising from the relationship between the terms of such products and the features of the Index. Capitalized terms used but not defined in this Certain Risk Factors and Additional Information section have the meanings given to them in the methodology.*

### **Risk Factors**

Each of the Equity Basket and the Underlying Fixed Income Assets comprising the Index is calculated on an excess return basis over the Federal Funds Rate. The Index Value is further reduced by the “Deduction Rate” of 0.50% per annum (accruing daily), which is a flat reduction regardless of the Index’s allocations. Increases in the level of the Federal Funds Rate, together with the Deduction Rate, may offset in whole or in part increases in the Equity Basket Value and Underlying Asset Values of the Underlying Fixed Income Assets. As a result, any return on the Index may be reduced or eliminated, which will have the effect of reducing the amount payable in respect of any investment in a product linked to the Index. Generally speaking, on any day the weighted return of the Equity Basket and the Underlying Fixed Income Assets must be at least as great as the sum of 0.50% per annum (accruing daily) plus the product of (1) the combined weight of the Equity Basket and the Underlying Fixed Income Assets and (2) the Federal Funds Rate before the Index will have a positive return.

The value of the Index from time to time depends on the values of the Underlying Assets, each of which may increase or decrease in value over time. Neither the Index nor any of the Underlying Assets includes any element of downside protection or guaranteed return. The value of any Underlying Asset, or the Index itself, may fall substantially below its value at the Launch Date or on any particular day and may fall to or below zero. If the value of the Index should fall to or below zero in respect of an Index Business Day, then the Index Value in respect of such Index Business Day and all following Index Business Days shall be zero.

Due to the design of the Index’ rebalancing mechanisms, U.S. Treasury-linked assets could potentially account for a significant portion of the Index’s overall allocation. In addition, the Equity Basket is constructed using an Equity Basket algorithm that seeks to minimize historical realized volatility, subject to certain constraints. As a result, the Index may be composed of Underlying Assets with relatively low historical realized volatility, which could offer lower return potential. Furthermore, the Index does not permit leverage, and the inability to leverage Underlying Assets with potentially low returns will limit returns.

The Index may differ fundamentally from other volatility control strategies. In particular, the Index uses volatility as the primary determinant of weightings assigned to the Equity Basket and each of the Underlying Fixed Income Assets without regard to their respective historical returns (other than to the limited extent that the Fixed Income Momentum Signal takes excess returns of

the 10-Year U.S. Treasuries Futures Position into account). This may result in a lower-volatility (and possibly lower-yielding) constituent being significantly more heavily weighted than a higher-volatility (and possibly higher-yielding) constituent, even if the overall volatility targets could be achieved by weighting the Index allocation entirely to the higher-volatility (and possibly higher-yielding) constituent. In the event that the aggregate weight of the Equity Basket and Underlying Fixed Income Assets is less than 100%, the Index will allocate exposure to a hypothetical cash position that will earn no return on an excess return basis. Under such circumstances, the full “Deduction Rate” of 0.50% per annum (accruing daily) will continue to be deducted, so any exposure to the hypothetical cash position will effectively earn a negative return.

Past performance or hypothetical past performance of the Index is no guide to future performance. The Index was designed based on historical performance measures of Underlying Assets over a pre-defined period based on certain underlying assumptions. However, the actual performance of the Index in the future may bear little relation to the historical performance or hypothetical historical past performance of the Index. The Index may under-perform a static or managed allocation into the relevant Underlying Assets. Among other things, this is because the Index could be over-weighted in an Underlying Asset that suffers a significant decline in performance or be under-weighted in an Underlying Asset that experiences a major rise in performance.

The Index may fail to achieve its volatility target. Although the Index includes a volatility control mechanism, such controls rely on historical realized volatility, which may not reflect the future volatility of one or more Underlying Assets. Even in an environment where increased volatility is observable in historical realized volatility, the Index uses a “decay factor” of 97% to calculate volatility for the Long-term Interim Baskets comprised of the Equity Basket and applicable Underlying Fixed Income Asset, and a “decay factor” of 94% to calculate volatility for the Short-term Interim Baskets comprised of the Equity Basket and applicable Underlying Fixed Income Asset, meaning lower historical volatilities may continue to exert significant influence over volatility calculations even following an increase in volatility which will only diminish gradually over time. As a result, the Index may be slow to rebalance allocations or reduce exposure to Underlying Assets following a sudden increase in volatility. All these factors may cause the performance of the Index to be adversely and disproportionately affected by the poor performance of one or more Underlying Assets, particularly if such poor performance is associated with a sudden increase in volatility (such as may be the case in a market crisis affecting an Underlying Asset).

The Index methodology makes allocations to the Equity/10-Year Treasury Target Portfolio based on a Fixed Income Momentum Signal measuring the excess return of the 10-Year U.S. Treasuries Futures Position, with any remaining weight allocated to the Equity/2-Year Treasury Target Portfolio. The Fixed Income Momentum Signal is the percentage of days during the 10 Index Business Day period to and including the relevant Index Business Day for which the annualized excess return of the 10-Year U.S. Treasuries Futures Position over the Fixed Income Momentum Look-Back Period of approximately twelve months is zero or positive. As a result, the Index may be slow to have a shift in the momentum signal and slow to rebalance exposure between the Target Portfolios even after a shift in momentum. In other circumstances, the Fixed Income Momentum Signal may introduce unnecessary rebalancings between Target Portfolios

and Underlying Assets in an environment where no strong trend exists. Although the Fixed Income Momentum Signal is designed to shift allocations to the Equity/2-Year Treasury Target Portfolio from the Equity/10-Year Treasury Target Portfolio under certain conditions that may include generally rising interest rate environments, there can be no assurance that the 2-Year U.S. Treasuries Future Position will outperform the 10-Year U.S. Treasuries Future Position and Equity/2-Year Treasury Target Portfolio will outperform the Equity/10-Year Treasury Target Portfolio in such environments. As a result of these and other factors, there can be no assurance that the Index will outperform an otherwise similar strategy without a fixed income momentum signal feature.

The composition of the Index may change dramatically over time. The weights assigned to the Equity Basket and Underlying Fixed Income Assets are rebalanced daily. Within the Equity Basket, the target weights of the nine Underlying Equity Assets are rebalanced monthly. Although the Index includes various mechanisms (such as look-back periods and volatility decay factors) to promote continuity in the Index weights over the short-term, the impact of historical factors influencing the composition of the Index diminishes as such factors recede into the past. As a result, the composition and performance characteristics of the Index may change dramatically over time.

On any given Index Business Day, the Equity Basket may have exposure to as few as five of the nine eligible Underlying Equity Assets and may not have any exposure to some of the nine eligible Underlying Equity Assets during the entire term of an investment linked to the Index. On each Equity Basket Observation Day, the Equity Basket algorithm seeks to identify the combination of nine Underlying Equity Asset weights summing to 100% that would have provided the lowest hypothetical historical volatility (as identified by the Equity Basket algorithm, and subject to the constraints of a maximum weight of 20% and a minimum weight of zero for each Underlying Equity Asset) over three look-back periods of one, three and six months, with the weights identified by the Equity Basket algorithm from the three look-back periods averaged to determine the Equity Basket allocations. As a result, you should not expect the Equity Basket to provide a balanced exposure to all of the eligible Underlying Equity Assets, and the Equity Basket may provide lower returns than an otherwise similar basket assembled based on historical returns, market capitalization or other factors. Furthermore, because Equity Basket allocations are based on an average over three look-back periods, the weight of each Underlying Equity Asset likely will be different than it would have been had the Equity Basket allocations been determined based on a single realized volatility look-back period.

The Calculation Agent employs commercially available computer software that determines mathematical solutions to predefined mathematical problems (a “solver”) which uses a pre-defined set of optimization formulae to select the relevant underlying equity asset weights (the Equity Basket algorithm). If the Calculation Agent employed different “solvers,” the final set of weights selected for the Equity Basket might be different and possibly materially so. As such, the performance of the Index could be materially different. References in this Index description to an algorithm selecting a combination of Underlying Equity Assets with the “lowest historical volatility”, or similar language, should be understood to mean the lowest volatility that can be computed under the relevant constraints using the “solver” employed by the Calculation Agent in administering the relevant Index algorithms. There is no guarantee that this solver will determine

the optimal set of weights, and it is possible that there exists on any Index Business Day combinations that have not been identified by the solver that would provide a better outcome.

The weight attributed to each Underlying Equity Asset on each Equity Basket Observation Day is intended to minimize the historical volatility of the combination of the Underlying Equity Assets based on an analysis of the historical volatilities of various combinations of exposures to the Underlying Equity Assets, subject to certain constraints. As the possible weights are a continuous function, there is no simple function to test the various combinations of exposures and achieve the optimal set of weights. As a result, it is necessary to use approximations contained in computation routines.

Even when the Methodology uses deterministic algorithms that do not rely on “solvers”, with outputs fully determined by the parameter values and relevant inputs, there can be no assurance that such algorithms will achieve the outcomes for which they were designed. For example, references in this Index description to an algorithm selecting a combination of Interim Basket Constituents (and consequently Portfolio Constituents) with the “highest weighted historical volatility” and similar language only means that the Methodology will implement the specified calculations, which are intended to identify such a combination subject to the relevant constraints. Such algorithms were selected based on certain assumptions, and there can be no assurance that such algorithms will achieve the outcomes for which they were designed even if a solution to the algorithms specified by the Methodology can be determined.

The Index has only been calculated live since the Launch Date and as such, there is no historical live performance data available in respect of it prior to that time. Additionally, there may be only limited historical performance data with respect to certain Underlying Assets. The past performance or hypothetical past performance of the Index may reflect the influence of market environments (including general levels of interest rates) that may be significantly different from future market environments, and there can be no assurances that the Index’s fixed income momentum signal feature will provide any value compared to a strategy without such a feature. As a result, any investment the return of which is linked to the Index or such Underlying Assets may involve greater risk than an exposure linked to indices or strategies with a longer-term track record. The absence of a long-term track record with respect to certain Underlying Assets is particularly significant because some parts of the algorithm underlying the Index are based on historical patterns in various performance measures (including fixed income securities) that may or may not be repeated in the future.

The Index was launched on the Launch Date. Each of the Underlying Assets or the respective reference instruments also had an inception date that is different from the Asset Base Date shown above. Performance indicated before the relevant inception date is hypothetical and has been calculated back to the relevant base date using the methodology and assumptions about certain of the components and decisions the Index Committee or Calculation Agent of the Index or the Index components may have made. Index values calculated for periods in which the Index or any Underlying Asset did not yet exist may not reflect the actual levels that would have been calculated on that date if, in fact, such index had existed at that point in time.

The Index is structured by Goldman Sachs International as Index Sponsor without regard to any products linked to it. Solactive AG acts as the Calculation Agent of the Index and, in that capacity, is responsible for the day-to-day implementation of the Methodology, for the calculation of the Index, including responding to Market Disruption Events and potential adjustment events, and for publication of the Index values and the Methodology. The decisions of the Calculation Agent could have an impact, positive or negative, on the closing level of the Index. In its role as Index Sponsor, Goldman Sachs International does not have any obligation to take the needs of any person into consideration in structuring the Index or revising the Methodology.

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The Index methodology relies on information from Relevant Exchanges of such Underlying Assets or other public sources. If you are considering acquiring or making an investment in a product linked to the Index, you should carefully read and understand the information about those Underlying Assets, which can be found using the links indicated therefor under Additional Information of the “*Overview of Underlying Assets*”. However, the Calculation Agent and Goldman Sachs make no warranty as to the correctness of that information and take no responsibility for the accuracy of such data or the impact of any inaccuracy of such data on the Index.

The futures markets occasionally experience disruptions in trading (including temporary distortions or other disruptions due to various factors, such as the lack of liquidity in markets, the participation of speculators and governmental regulation and intervention). These disruptions include the cessation, for a material time, of trading in the futures contracts underlying an Underlying Asset or the imposition by the futures exchange on which one or more such futures contracts are traded of a “limit price,” a range outside of which these futures contracts are not permitted to trade. In addition, a futures exchange may replace or delist a futures contract included in the Underlying Asset. There can be no assurance that a disruption, replacement or delisting of a futures contract, or any other event, will not have an adverse or distortive effect on the value of an Underlying Asset or the manner in which it is calculated.

The U.S. Treasuries Futures Positions are composed of futures contracts rather than underlying securities. Futures contracts normally specify a certain date for settlement of a financial future (such as a futures contract on a securities index) or delivery of the underlying physical commodity. As the exchange-traded futures contracts that comprise each U.S. Treasuries Futures Position approach expiration, they are replaced by similar contracts that have a later expiration.

Thus, for example, a futures contract purchased and held in August may specify a September expiration. As time passes, the contract expiring in September may be replaced by a contract for delivery in December. This process is referred to as “rolling.” Because of the potential effects of negative roll yields, it is possible for the value of U.S. Treasuries Futures Position composed of futures contracts to decrease significantly over time even when the relevant Treasury notes are stable or increasing. It is also possible, when the relevant Treasury notes are decreasing, for the value of such U.S. Treasuries Futures Position to decrease significantly over time.

The U.S. Treasuries Futures Positions are not actively managed. The U.S. Treasuries Futures Positions operate in accordance with a set of pre-determined rolling methodology and formulae and the Calculation Agent does not exercise any discretion with respect to the U.S. Treasuries Futures Positions. The U.S. Treasuries Futures Positions are, therefore, not managed. Goldman Sachs International as the Index Sponsor is not acting as an investment adviser or performing a discretionary management role with respect to the U.S. Treasuries Futures Positions and, as a result, has no fiduciary duty to any person in respect of the U.S. Treasuries Futures Positions.

The U.S. Treasuries Futures Positions provide no rights with respect to the underlying futures contracts. The investment exposure provided by the Index and U.S. Treasuries Futures Positions is synthetic. An investment linked to the Index and U.S. Treasuries Futures Positions will therefore not make an investor in any product linked to the Index a holder of, or give such investor a direct investment position in, any futures contracts underlying the U.S. Treasuries Futures Positions.

If the price of an underlying futures contract is unavailable, or a market disruption event has occurred or is continuing on any given Asset Business Day, as described in the Methodology, the Calculation Agent may delay the rebalancing of the U.S. Treasuries Futures Positions and use replacement values that may be different from, and may be higher or lower than, the level of the U.S. Treasuries Futures Positions as calculated by the Calculation Agent based on pre-determined valuation rules.

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