

GOLDMAN SACHS EQUITY FACTOR INDEX EUROPE NET TOTAL RETURN EUR

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OVERVIEW

Introduction

The Goldman Sachs Equity Factor Index Europe Net Total Return EUR (the "**Index**") is created by Goldman Sachs International (the "**Index Sponsor**") and is designed to synthetically represent the performance of a portfolio of European equities reflecting five Investment Factors (as defined below) while taking into account various investment considerations, such as the expected tracking error of the Index to a Benchmark Portfolio (as defined below), the market liquidity of stocks, transaction costs and the turnover of stocks, using a rules-based methodology as described below, all as set out in this description (the "**Methodology**").

The synthetic portfolio of European equities is drawn from the Eligible Universe (as defined below) using a stock selection process as described in the section "Selection of Component Stocks and Determination of the Weights" below. The Index aims to implement practices and methods described in academic literature relating to the Investment Factors in a tradable, liquid and transparent manner.

The Index attempts to capture returns arising from exposure to the following five investment factors below (each an "**Investment Factor**" and together the "**Investment Factors**"). Sources of these returns in different markets have been documented in academic literature and have been explained as arising from traditional risk sharing, structural and/or information processing constraints. The expected returns predicted by theory may be thought of as the premium received by a hypothetical investor willing and able to take those identifiable risks and are therefore characterised as "**risk premia**".

Investment Factors:

1. **Quality Factor:** This Investment Factor aims to capture the potential outperformance of stocks that have a strong balance sheet compared to stocks that have a weaker balance sheet.
2. **Value Factor:** This Investment Factor attempts to capture the potential outperformance of "inexpensive" companies compared to "expensive" companies, where such value measure is derived from various accounting ratios.
3. **Low Beta Factor:** This Investment Factor attempts to capture the potential risk-adjusted outperformance of stocks with low beta to the market compared to those with high beta, where beta is a measure of the sensitivity of a stock's returns to the market returns.
4. **Momentum Factor:** This Investment Factor attempts to capture the potential future outperformance of stocks with high historical returns compared to stocks with low historical returns. The calculation of such historical returns is described in more detail in the section "Selection of Component Stocks and Determination of the Weights" below.
5. **Size Factor:** This Investment Factor attempts to capture the potential risk-adjusted outperformance of smaller companies compared to larger companies, as measured by market capitalisation.

The Index is designed to generate a synthetic exposure to the total return of a long-only basket of component stocks (the "**Basket**"). The Index uses an algorithm that determines the stocks to be included in the Basket on any day (such stocks the "**Component Stocks**") and the weight attributed to each such Component Stock.

A new Basket of Component Stocks and their respective weighting (the "**Weights**") will be selected from the potential universe of stocks (the "**Eligible Universe**"), as defined in the section "Eligible Universe" below, at each Basket Rebalancing (as defined below).

Using the rules set out in the section "Selection of Component Stocks and Determination of the Weights" below, the Weights are calculated and the Component Stocks in the Basket are determined (in each case, as of the date of this document) by Axioma, Inc. (the "**Weight Calculation Agent**"). Based on such Weights and Component Stocks, the value of the Index is calculated (as of the date of this document) by S&P Dow Jones Indices (the "**Index Calculation Agent**").

The Index Sponsor may appoint one or more replacement Weight Calculation Agents and/or one or more replacement Index Calculation Agents from time to time, including itself.

The Index is rules-based and none of the Index Sponsor, Weight Calculation Agent or Index Calculation Agent exercise any discretion or independent judgment as regards the application of the Methodology to the selection, weighting and on-going rebalancing of the Basket other than in certain limited cases following the occurrence of an Extraordinary Event or a Disruption Event as set out in the section "Extraordinary Events and Disruption Events" below. The Methodology may be amended by the Index Committee as set out in the section "Availability and Publication of the Index Value, Changes in Methodology, and Termination of the Index" below.

The Index is not an actively managed index and none of the Index Sponsor, the Weight Calculation Agent or the Index Calculation Agent are providing any investment advice or performing a discretionary asset management role. None of the Index Sponsor, the Weight Calculation Agent or the Index Calculation Agent will owe any person any fiduciary duties in respect of the Index and are not required to take the interests of any person into account in making any determination with respect thereto.

Although the Index is linked to the return of the Basket of Component Stocks, investing in any product linked to the Index will not make an investor a holder of, or give an investor a direct investment position or any legal or beneficial interest in, any of the Component Stocks.

The Index is denominated in Euro (the "**Index Currency**"). The Index does not seek to hedge any foreign currency exposure in respect of any Component Stocks that are not denominated in the Index Currency and will not provide any hedge against foreign exchange risk. Investors in any product linked to the Index will therefore be exposed to the positive or negative effects of currency exchange rate fluctuations in the relevant currencies against the Index Currency on the values of such Component Stocks.

The Weights of the Component Stocks in the Basket are calculated such that the expected tracking error of the Basket to the Benchmark Portfolio (as defined below) does not exceed 2%. The subsequently realised tracking error of the Index to the Benchmark Portfolio may be lower or higher than 2%.

The Index is calculated so as to include deductions that are intended to synthetically reflect the transaction costs that a hypothetical investor would incur if such hypothetical investor were to enter into and maintain a series of direct investment positions to provide the same exposure to the Component Stocks of the Basket. Investors should note that the actual costs of entering into and maintaining such exposure may be lower or higher and, if they were lower, the effect of these deductions would be to benefit the Index Sponsor and/or any affiliate in its capacity as issuer of or counterparty to products linked to the Index (a "**Hedging Party**").

A Hedging Party will hedge its exposure or potential or expected exposure to the Index, products linked thereto, stocks in the Eligible Universe and the Basket and investments linked to such stocks with an affiliate or a third party. A Hedging Party may make significant returns on this hedging activity independently of the performance of the Index, including in scenarios where the levels at which it executes its hedges are different from the levels specified in the methodology for determining the Index Value.

The value of the Index is floored at zero. If on any day the value of the Index falls to zero, it will remain at zero for all future days. In such an event, any investment linked to the Index may lose all of its value, in which case there may be no chance of such investment thereafter recovering.

Unless the context otherwise requires, references below to "The Goldman Sachs Group, Inc.", "Goldman Sachs", "we", "our" and "us" refer only to The Goldman Sachs Group, Inc. and not to its consolidated subsidiaries, and the "Goldman Sachs Group" refers to The Goldman Sachs Group, Inc. and its consolidated subsidiaries. Goldman Sachs International owns the copyright and all other rights to the Index.

Goldman Sachs International does not have any obligation to continue to publish, and may discontinue publication of the Index at any time.

This version of this document is dated 28 November 2018. Upon each update to a new version of this document, the most recent version shall be deemed to be in force from the date of such update and replace in its entirety the preceding version such that, in the event of any conflict between the preceding version and the most recent version, the most recent version shall prevail. The most recent version of this document will be published on <https://etf.invesco.com> or any successor page (the "**Index Information Publication Data Source**").

DESCRIPTION OF THE INDEX AND METHODOLOGY

1. Overview of the Monthly Rebalancing Process

The Basket will be rebalanced approximately twice a month (a "**Basket Rebalancing**"). Each Basket Rebalancing will comprise the following steps:

- (i) On 5 October 2016 and every eighth business day thereafter (each such day, subject to exchange holiday calendar adjustments, an "**Observation Day**") the Weight Calculation Agent will:
 - (a) identify the securities comprising the Eligible Universe (each such security, an "**Eligible Stock**");
 - (b) determine the Component Stocks from the Eligible Universe; and
 - (c) determine the Weight for each Component Stock.
- (ii) On each day which falls four (4) business days (and further subject to exchange holiday calendar adjustments if on such day not all the relevant exchanges are open for trading during their regular trading sessions) after an Observation Day (each such day a "**Rebalancing Day**") the Index will notionally sell and/or purchase Component Stocks to reach the relevant Weight for each Component Stock for such Rebalancing Day using the process set out in the section "Calculation and Publication of the Index Value" below.

Other than on a Rebalancing Day, the Component Stocks in the Basket will remain unchanged, except for adjustments or modifications resulting from corporate actions and/or the changes arising from Extraordinary Events or Disruption Events as set out in the section "Extraordinary Events and Disruption Events" below.

2. Risk Model

As described in more detail in the section "Selection of Component Stocks and Determination of the Weights" below, the Index is using the Axioma Portfolio Optimizer™ software package (the "**Optimiser**") and the data contained therein (together the "**Risk Model**") in order to calculate the Weights of the Component Stocks in the Basket. The Risk Model contains the Axioma EU21 Estimation Universe (as described in more detail below), among other software and data. More information on the Optimiser and the Risk Model can be obtained from the portfolio user guide accompanying the Risk Model and from <http://www.axioma.com>. The Index Sponsor may replace the Optimiser and/or the Risk Model from time to time.

3. Eligible Universe and Market Cap Weighted Portfolio

Eligible Universe

To qualify for inclusion in the Eligible Universe on an Observation Day, a stock must be a member of the Market Cap Weighted Portfolio (as defined below) on such day.

Eligible Countries

The "**Eligible Countries**" as of the date of this document are: Austria, Belgium, Denmark, Germany, Finland, France, Ireland, Italy, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom. On any subsequent day if the Index Sponsor determines that equities (a) from any Eligible Country have been excluded from, or (b) from any other country have been included in, one or more major pan-European equity indices, then the Index Sponsor may exclude or include (as the case may be) such country from the list of Eligible Countries. Following any such exclusion or

inclusion, the Index Sponsor will publish a notice to such effect on the Index Information Publication Data Source.

Market Cap Weighted Portfolio

In order to determine the Market Cap Weighted Portfolio in respect of an Observation Day, the stocks comprising the Axioma EU21 Estimation Universe of stocks (which is part of the Risk Model and which is described in more detail below) on such day are associated with their respective countries. The relevant country for a stock is determined by reference to the Risk Model.

The process to determine the Market Cap Weighted Portfolio in respect of an Observation Day is initiated by determining a base portfolio of those stocks contained in the Axioma EU21 Estimation Universe which the Risk Model associates with an Eligible Country. Next, each such stock which had no trading volume on the relevant exchange on more than 10% of the scheduled trading days in the 3 completed calendar months preceding such Observation Day will be removed. Such removal will not be applied for stocks with an average price per share over the preceding one month period greater than USD 10,000 or the local currency equivalent (such filtering rules described in this paragraph, the "**Universe Filter**").

As a next step, all remaining stocks are ranked by their market capitalisation in Euro, averaged over the preceding one month period, starting with the stock with the highest market capitalisation and ending with the stock with the lowest market capitalisation. The process seeks to select the stocks with the highest market capitalisation which in aggregate account for approximately 85% of the aggregate market capitalisation of the Axioma EU21 Estimation Universe.

The "**Market Cap Weighted Portfolio**" in respect of an Observation Day consists of all stocks which have been selected in such way. The weight of a stock in the Market Cap Weighted Portfolio (the "**Market Cap Stock Weight**"), in respect of such day, is equal to its market capitalisation in Euro, divided by the sum of the market capitalisation in Euro in respect of all stocks in the Market Cap Weighted Portfolio.

The "**Axioma EU21 Estimation Universe**" is constructed by applying a set of exclusion rules to the Axioma EU21 Listed Universe, resulting in stocks with sufficient size and liquidity. More granular, "localized" rules are also applied on a per-market basis to filter certain exchanges, asset types, etc.

As of 2011, the Axioma EU21 Listed Universe comprised roughly 7,300 securities, covering 36 markets (including all of the Eligible Countries) as well as emerging markets which are not in the Eligible Countries. As of 2011, the Axioma EU21 Estimation Universe comprised 2,500 securities on average.

4. Selection of Component Stocks and Determination of the Weights

Factor Score

On each Observation Day the Weight Calculation Agent will determine the Component Stocks and their respective Weights by assigning a score (the "**Factor Score**") to each Eligible Stock in respect of each Investment Factor. The algorithm for calculating the Factor Score for each Eligible Stock in respect of each Investment Factor is based on historically observed data and reflects academic research and publications in relation to such Investment Factors. On each Observation Day the Factor Scores in respect of each Eligible Stock and each Investment Factor are calculated as follows:

1. **Quality Factor Score:** The Weight Calculation Agent will obtain the following seven metrics using data from the Thomson Reuters Worldscope database for each Eligible Stock: (i) return on assets, (ii) operating cash flow to total assets, (iii) accruals, (iv) liquidity, (v) gross margin, (vi) asset turnover and (vii) leverage. The Quality Factor Score for an Eligible Stock is calculated as the average of the seven metrics, whereby each metric has been winsorised to 2.5 standard deviations (i.e. by replacing extreme values for each metric with the relevant

values based on the specified standard deviations) and subsequently standardised separately for each industry group.

2. **Value Factor Score:** The Value Factor Score for each Eligible Stock is obtained directly from the Risk Model and subsequently standardised within each industry group.
3. **Low Beta Factor Score:** The Low Beta Factor Score of an Eligible Stock is equal to one minus its “Beta” to the Benchmark Portfolio (as defined below), where Beta is a measure of the sensitivity of an Eligible Stock’s returns to the returns of the Benchmark Portfolio. The vector β of the Betas for all Eligible Stocks is calculated using the vector of the Benchmark Stock Weights w^B (as defined below) and the covariance matrix C of stock returns obtained from the Risk Model:

$$\beta = \frac{C \cdot w_B}{w_B' \cdot C \cdot w_B}$$

4. **Momentum Factor Score:** The Weight Calculation Agent will determine the total return cumulative performance and the realised volatility over the 12 months preceding the relevant Observation Day, excluding the most recent month preceding the relevant Observation Day, for each Eligible Stock. Both metrics are then winsorised to 2.5 standard deviations and subsequently standardised separately for each industry group to generate a momentum score Z_M and a volatility score Z_σ .

The Weight Calculation Agent will run the cross-sectional regression $Z_M = \alpha Z_\sigma + \varepsilon$ and the Momentum Factor Score is defined as the vector of residuals ε .

5. **Size Factor Score:** The Size Factor Score for an Eligible Stock is calculated as -1 (minus one) multiplied by the natural logarithm of an Eligible Stock’s market capitalisation and is winsorised to 2.5 standard deviations and subsequently standardised separately for each industry group.

In each case, the Weight Calculation Agent will determine the relevant industry group for an Eligible Stock by reference to the country and the industry (broadly based on the Global Industry Classification Standard, GICS) for such stock in the Risk Model. The industry (broadly based on GICS level 3) of an Eligible Stock contained in the Risk Model is associated with the corresponding industry group (broadly based on GICS level 2). More information on the Thomson Reuters Worldscope database can be obtained from <http://www.thomsonreuters.com>.

Basket Score

In respect of a Basket Rebalancing, the Weight Calculation Agent will calculate a score (a “**Basket Score**”) for each Eligible Stock. The Basket Score is derived from the Factor Scores for such Eligible Stock, weighted by the volatility of the factor portfolios. The volatilities Σ of the factor portfolios W are calculated using the covariance matrix C of the Risk Model as follows:

$$\Sigma = \sqrt{\text{diag}(W' C W)}$$

Determination of the Weights

Once the Basket Score has been determined for each Eligible Stock, the Weight Calculation Agent will assign a weight for each Eligible Stock using a rules-based non-discretionary mathematical portfolio optimisation algorithm as described below. This algorithm assigns weights to Eligible Stocks in a manner which seeks to maximise the aggregated Basket Score over all Eligible Stocks, subject to the following set of constraints:

1. **Long Only Constraint:** The weight of each Component Stock cannot be less than zero. Consequently, the Index is a long only index.
2. **Country Constraint:** The aggregate of the relative weights of each Component Stock in the Basket associated with a particular country must be within the range of +/- 2% as compared to the aggregate weight of all stocks associated with such country in the Benchmark Portfolio (as defined below).
3. **Industry Group Constraint:** The aggregate of the weights of each Component Stock in the Basket associated with a particular industry group must be within the range of +/- 2% as compared to the weight of all stocks associated with such industry group in the Benchmark Portfolio (as defined below).
4. **Maximum Weight Constraint:** The weight of each Component Stock in the Basket must not exceed 1%.
5. **Holding Liquidity Constraint:** The weight of each Component Stock must not exceed 30% of such stock's 20 day median daily trading volume, as determined by the Weight Calculation Agent, assuming a notional of financial products linked to the Index equal to the Assumed Notional (as defined below).
6. **Trading Liquidity Constraint:** The change in weight in each Component Stock resulting from a Basket Rebalancing must not exceed 10% of such stock's 20 day median daily trading volume, as determined by the Weight Calculation Agent, assuming a notional of financial products linked to the Index equal to the Assumed Notional (as defined below).
7. **Beta Constraint:** The aggregated weighted Beta of the selected Basket of stocks must be within the range from and including 0.999 to and including 1.001.
8. **Turnover Constraint:** The sum of the absolute change in weights resulting from a Basket Rebalancing, aggregated over all Component Stocks, must not exceed, (i) 15% of the Index Value (as defined below) for the Observation Date, 5 October 2016, and (ii) 10% of the Index Value for all subsequent Observation Dates.
9. **Risk Constraint:** The expected tracking error of the Basket to the Benchmark Portfolio (as defined below) must not exceed 2%. The tracking error of the Basket with vector of Weights w_{Basket} is calculated using the vector of the Benchmark Stock Weights w_{BM} in the Benchmark Portfolio (each as defined below) and the covariance matrix C of stock returns obtained from the Risk Model:

$$\sqrt{(w_{Basket} - w_{BM})' \cdot C \cdot (w_{Basket} - w_{BM})}$$

10. **UCITS Constraint:** The "Limit Issuer Holding Constraint" of the Optimiser which places a maximum limit on the sum of weighted holdings from a single issuer that exceeds a certain lower bound is used to ensure that the selected Basket complies with the 5/10/40 diversification requirement applicable to UCITS funds.
11. **Missing Data:** With respect to an Observation Day, any Eligible Stock (i) which is not contained in the Risk Model, (ii) for which any of the Factor Scores cannot be calculated, and/or (iii) for which the average daily exchange traded volume cannot be calculated due to insufficient available data, will be assigned a weight of zero and removed from the optimisation procedure.

The assumed notional of financial products linked to the Index (the "**Assumed Notional**") is EUR 1 billion.

In each case, the Weight Calculation Agent will determine the relevant industry group for an Eligible Stock by reference to the country and the industry for such stock in the Risk Model. The industry (broadly based on GICS level 3) of an Eligible Stock contained in the Risk Model is associated with the corresponding industry group (broadly based on GICS level 2).

Optimisation Fallback Provisions and Rescaling

If no portfolio which satisfies all optimisation constraints can be established then a constraint hierarchy in the Optimiser is used to partially relax the set of optimisation constraints by assigning the following priorities to the optimisation constraints (whereby priority 1 reflects the highest priority):

Priority	Optimisation constraint
1	Trading Liquidity Constraint
2	Maximum Weight Constraint
3	Holding Liquidity Constraint
4	Turnover Constraint

All Eligible Stocks to which the Optimiser assigns a weight below 0.01% will be removed from the Basket.

Each Eligible Stock with a positive weight will be considered a Component Stock in respect of such Basket Rebalancing. Further, the weight assigned to each Component Stock is rounded to the nearest 0.001% with 0.0005% being rounded upwards and is rescaled to ensure that the sum of all the weights of the Component Stocks equals 100%. The resulting measure is the Weight for each Component Stock.

Benchmark Portfolio

In respect of an Observation Day, the "**Benchmark Portfolio**" consists of all stocks contained in the Market Cap Weighted Portfolio on such day (each such stock a "**Benchmark Stock**"). The weight of a stock in the Benchmark Portfolio (the "**Benchmark Stock Weight**" in respect of a stock and together the "**Benchmark Stock Weights**") is used to constrain the active risk of the Index using the optimisation constraints as described in the section "Determination of the Weights" above.

In respect of an Observation Day, the Benchmark Stock Weights are calculated using an optimisation algorithm which seeks to minimise the Benchmark Tracking Error (as defined below) subject to the following set of constraints:

1. **Long Only Constraint:** The Benchmark Stock Weight of each Benchmark Stock in the Benchmark Portfolio cannot be less than zero.
2. **Country Constraint:** The aggregate of the Benchmark Stock Weights in the Benchmark Portfolio associated with a particular country must be equal to the Pre-Optimisation Country Weight (as defined below) of such country.
3. **Sector Constraint:** The aggregate of the Benchmark Stock Weights in the Benchmark Portfolio associated with a particular sector must be equal to the Pre-Optimisation Sector Weight (as defined below) of such sector.

4. **Sum Constraint:** The sum of the Benchmark Stock Weights in the Benchmark Portfolio must be equal to one (1).
5. **Missing Data:** With respect to an Observation Day, any Benchmark Stock for which not all required data is contained in the Risk Model will be assigned a Benchmark Stock Weight of zero and will be removed from the optimisation procedure.

If no portfolio which satisfies all optimisation constraints can be established then the Country Constraint and the Sector Constraint will be partially relaxed.

In respect of an Observation Day, the tracking error of the Benchmark Portfolio compared to the Market Cap Weighted Portfolio (the "**Benchmark Tracking Error**") is calculated based on the vector of Benchmark Stock Weights w_{BM} (as defined above), the vector of Market Cap Stock Weights w_{MC} (as defined above) and the covariance matrix C of stock returns obtained via the Risk Model as follows:

$$\sqrt{(w_{BM} - w_{MC})' \cdot C \cdot (w_{BM} - w_{MC})}$$

In each case, the Weight Calculation Agent will determine the relevant sector for a Benchmark Stock by reference to the country and the industry for such stock in the Risk Model. The industry (broadly based on GICS level 3) of a Benchmark Stock contained in the Risk Model is associated with the corresponding sector (broadly based on GICS level 1).

The Benchmark Stock Weights obtained from the optimisation above are rounded to the nearest 0.001% with 0.0005% being rounded upwards and rescaled to ensure that the sum of the Benchmark Stock Weights equals 100%.

Pre-Optimisation Weights of the Benchmark Portfolio

In respect of an Observation Day, the "Reference Index" consists of all stocks contained in the MSCI Europe EUR Index on such day (each such stock a "Reference Index Stock"). The weight of a Reference Index Stock in the Reference Index (the "Reference Index Stock Weight") is used in the determination of the "Pre-Optimisation Country Weight" and "Pre-Optimisation Sector Weight" as defined below.

The "**Pre-Optimisation Country Weight**" is the aggregate Reference Index Stock Weight in the Reference Index associated with a particular country.

The "**Pre-Optimisation Sector Weight**" is the aggregate Reference Index Stock Weight in the Reference Index associated with a particular sector.

In each case, the Weight Calculation Agent will determine the relevant sector for a Reference Index Stock by reference to the industry for such stock in the Risk Model. The industry (broadly based on GICS level 3) of a Reference Index Stock contained in the Risk Model is associated with the corresponding sector (broadly based on GICS level 1).

Beta of the Index to the Benchmark Portfolio

In respect of an Observation Day, the Beta of the new Basket of Component Stocks determined by the Weight Calculation Agent in respect of such date to the Benchmark Portfolio (the "**Index Beta**") is calculated by the Weight Calculation Agent as the weighted sum of the Betas of the Component Stocks on such day.

5. Publication of Component Stocks and their Weights

With respect to a Rebalancing Day, the Index Sponsor will publish the Component Stocks and their Weights on the Index Information Publication Data Source within 10 London business days after such Rebalancing Day. In addition, any notices related to the Index will be published on the Index Information Publication Data Source.

6. Index Calculation Agent Methodology

Certain elements of the algorithm used to calculate the Index Value as described in the sections "Calculation and Publication of the Index Value" and "Extraordinary Events and Disruption Events" below use a methodology similar to that used by the Index Calculation Agent for the calculation of a large number of other equity indices (the "**Index Calculation Agent Methodology**"). Please refer to the documentation of the "Equity Indices Policies & Practices Methodology", available on the website of the Index Calculation Agent, at <http://www.spindices.com/documents/methodologies/methodology-sp-equity-indices-policies-practices.pdf>, or any successor page, for details about the Index Calculation Agent Methodology.

The sections "Calculation and Publication of the Index Value" and "Extraordinary Events and Disruption Events" below contain descriptions of certain elements of the Index Calculation Agent Methodology. Such descriptions are correct as at the date of this document.

The Index Calculation Agent may change the Index Calculation Agent Methodology from time to time (including creating a methodology specifically in respect of the Index) and following the implementation of any such change it will be reflected in the future calculation of the Index Value.

7. Calculation and Publication of the Index Value

Foreign Exchange and Transaction Costs

Any amounts or values (including the prices of the Component Stocks in the Basket) that are not denominated in the Index Currency will be converted by the Index Calculation Agent into the Index Currency. As at the date of this document the Index Calculation Agent Methodology uses the WM Reuters London 4 p.m. fixing (the "**FX Rate Fixing**") to convert any amounts or values into the Index Currency.

On each day that the Index notionally purchases or sells any shares in one or more stocks, the Index Value will be reduced by deductions intended to synthetically replicate transaction costs (including, but not limited to, any applicable stamp duty payments, financial transaction taxes, brokerage costs, and/or other fees and expenses) that would be incurred by an investor if it were to enter into actual transactions representing such notional rebalancing of the positions in the Basket.

As at the date of this document, the cost of transactions (the "**Transaction Cost**") in respect of each stock is 0.05% of the value of each stock being notionally purchased or sold (the "**Transaction Cost Rate**") in respect of a Basket Rebalancing.

If the Index Sponsor determines that the costs that a hypothetical investor would incur (determined by reference to amounts charged by an independent broker in the relevant market) when investing in, rebalancing, maintaining positions in, or synthetically replicating the performance of, any Component Stock is higher than the corresponding Transaction Cost Rate by more than 10% of such Transaction Cost Rate, then the Transaction Cost Rate in respect of such Component Stock will be increased correspondingly.

The actual costs of investing in, rebalancing, maintaining positions, or synthetically replicating the performance of, any Component Stock could be higher or lower than these hypothetical deductions. A Hedging Party that has hedged its exposure to Component Stocks will benefit if the actual costs that it incurs in carrying out its hedging activity are less than the synthetic Transaction Cost Rates applied in respect of the Index. Any such benefit will not be passed on to investors in products linked to the Index.

The Index Sponsor will give at least 30 calendar days' notice of any changes to the Transaction Cost Rate and will publish a notice on the Index Information Publication Data Source.

Dividends, Corporate Actions and Tax Rates

On each Index Business Day the Index Calculation Agent will adjust the Index Value and the Number of Shares (each as defined below) for dividends and other corporate actions. Such adjustments to the Number of Shares, Index Value and its components are determined by the Index Calculation Agent in accordance with the Index Calculation Agent Methodology. Corporate actions resulting in stock removals due to delistings, long-term stock suspensions, bankruptcies or acquisitions, as specified in the Index Calculation Agent Methodology, will be applied no sooner than one Index Business Day after the corresponding announcement by the Index Calculation Agent.

The Index Calculation Agent Methodology for net total return indices deducts a synthetic dividend withholding tax from dividend amounts. The synthetic tax rates applied to dividend amounts vary according to a company's country of incorporation and are determined by the Index Calculation Agent in accordance with the Index Calculation Agent Methodology, available on the website of the Index Calculation Agent, at <http://us.spindices.com/documents/additional-material/withholding-tax-index-values.pdf> or any successor document.

A Hedging Party that has hedged its exposure to Component Stocks will benefit if the effective rate of withholding tax that it incurs through its hedging activity is less than the synthetic tax withholding applied in respect of the Index. Any such benefit will not be passed on to investors in products linked to the Index.

Notional Purchase/Sale of Component Stocks in the Basket on a Rebalancing Day

In respect of each Rebalancing Day, the Index via the Index Calculation Agent notionally purchases or sells shares comprising the Component Stocks to arrive at the number of shares determined using the process described below in respect of a Rebalancing Day and a Component Stock:

1. Following the determination of the Component Stocks to be comprised in the Basket for a Basket Rebalancing, on the opening of a Rebalancing Day the Weight of each Component Stock is converted by the Index Calculation Agent into a new number of shares (the "**New Number of Shares**"):

$$New\ NS_{i,RD} = \frac{Basket\ Closing\ Value_{OD} \times Weight_{i,OD}}{Price_{i,OD} \times FX_{i,OD}}$$

Where:

Subscript *i* stands for each Component Stock in the Basket on the relevant Index Business Day

Subscript *OD* stands for the relevant Observation Day

Subscript *RD* stands for the relevant Rebalancing Day

Basket Closing Value_{date} stands for the "Basket Closing Value" on Index Business Day *date*, calculated as described in the section "Calculation of the Index Value" below

Weight_{i,date} stands for the Weight of Component Stock *i* on Observation Day *date*, calculated as described in the section "Selection Of Component Stocks and Determination of the Weights" above

$Price_{i,date}$ stands for the official closing price of Component Stock i published by the primary exchange on which such Component Stock i is traded on Index Business Day $date$ (such price and exchange as defined in the Index Calculation Agent Methodology, including if such Index Business Day is a scheduled holiday for such primary exchange)

$FX_{i,date}$ stands for the FX Rate Fixing to convert, if applicable, one unit of the currency in which Component Stock i is denominated into the Index Currency on Index Business Day $date$

2. The New Number of Shares is further adjusted by the Index Calculation Agent for all corporate actions that occur during the period from the relevant Observation Day to the Index Business Day immediately following the relevant Rebalancing Day (as described in the section "Dividends, Corporate Actions and Tax Rates", provided that such adjustments between Observation Day and Rebalancing Day will be implemented without the delay set out in such section for stock removals due to delistings, long-term stock suspensions, bankruptcies or acquisitions).
3. The New Number of Shares will become effective on the Index Business Day immediately following the relevant Rebalancing Day and will be the "**Number of Shares**" on the opening of such day.

Calculation of the Index Value

It is anticipated that the value of the Index (the "**Index Value**") will be calculated on each day from Monday to Friday of each week (each such day, an "**Index Business Day**"). Subject to the occurrence of an Extraordinary Event or a Disruption Event (as described in the section "Extraordinary Events and Disruption Events"), the Index Value will be published by the Index Calculation Agent on the Index Value Publication Data Source (as defined below) and shall be expressed in the Index Currency.

The inception date of the Index (the "**Index Inception Date**") was 23 April 2014, on which day the Index had an Index Value of 1000 (the "**Initial Index Value**"). On any Index Business Day following the Index Inception Date, the Index Value will be calculated using a formula in accordance with the Index Calculation Agent Methodology. As at the date of this document this formula is:

$$I_t = I_{t-1} \times \frac{\text{Basket Closing Value}_t + \text{Basket Dividend}_t}{\text{Basket Opening Value}_t} \times (1 - \text{Cost}_t)$$

$$\text{Basket Closing Value}_t = \sum_i (NS_{i,t} \times Price_{i,t} \times FX_{i,t})$$

$$\text{Basket Opening Value}_t = \sum_i (NS_{i,t} \times Price_{i,t-1} \times FX_{i,t-1} \times \text{Adjustment Factor}_{i,t})$$

$$\text{Basket Dividend}_t = \sum_i [NS_{i,t} \times \text{Dividend}_{i,t} \times FX_{i,t} \times (1 - \text{Withholding Tax Rate}_{i,t})]$$

In respect of an Index Business Day which is not a Rebalancing Day the Transaction Cost is zero:

$$\text{Cost}_t = 0$$

In respect of an Index Business Day which is also a Rebalancing Day the Transaction Cost resulting from the Basket Rebalancing is calculated as follows:

$$Cost_{RD} = \sum_i [TC Rate_{i,RD} \times |Open Weight Equivalent_{i,RD+1} - Close Weight Equivalent_{i,RD}|]$$

$$Open Weight Equivalent_{i,RD+1} = \frac{NS_{i,RD+1} \times Price_{i,RD} \times FX_{i,RD} \times Adjustment Factor_{i,RD+1}}{Basket Opening Value_{RD+1}}$$

$$Close Weight Equivalent_{i,RD} = \frac{NS_{i,RD} \times Price_{i,RD} \times FX_{i,RD}}{Basket Closing Value_{RD}}$$

Where:

Subscript t stands for the relevant Index Business Day

Subscript $t - 1$ stands for the Index Business Day immediately preceding Index Business Day t

Subscript $RD + 1$ stands for the Index Business Day immediately following Index Business Day RD

I_{date} stands for the Index Value on Index Business Day $date$

$NS_{i,date}$ stands for the Number of Shares with respect to Component Stock i on the opening of Index Business Day $date$. In respect of each Index Business Day immediately following a Rebalancing Day, the calculation of the Number of Shares effective on the opening of such day is described in the subsection "Notional Purchase/Sale of Component Stocks in the Basket on a Rebalancing Day". In respect of all other Index Business Days the Number of Shares on the opening of such days will be computed by the Index Calculation Agent based on the Number of Shares on the opening of the immediately preceding Index Business Day, adjusted for dividends and other corporate actions as described in the subsection "Dividends, Corporate Actions and Tax Rates"

$Adjustment Factor_{i,date}$ stands for the price adjustment factor in respect of Index Business Day $date$ for any corporate actions in respect of Component Stock i , determined by the Index Calculation Agent as described in the subsection "Dividends, Corporate Actions and Tax Rates"

$Dividend_{i,date}$ stands for the dividend amount in respect of Component Stock i and Index Business Day $date$, as described in the subsection "Dividends, Corporate Actions and Tax Rates"

$Withholding Tax Rate_{i,date}$ stands for the synthetic dividend withholding tax rate in respect of Component Stock i and Index Business Day $date$, as described in the subsection "Dividends, Corporate Actions and Tax Rates"

$TC Rate_{i,date}$ stands for the Transaction Cost Rate with respect to Component Stock i on Rebalancing Day $date$ as described in the section "Foreign Exchange and Transaction Costs"

8. Extraordinary Events and Disruption Events

The Index Calculation Agent defines extraordinary events, or any successor thereto (the "**Extraordinary Events**"), in the Index Calculation Agent Methodology. Upon the occurrence of an Extraordinary Event the Index Calculation Agent will adjust the Index Value as described in the Index Calculation Agent Methodology.

If on any day the Index Sponsor determines that:

- (i) other than as a result of a regular scheduled exchange holiday, a market participant, as a result of a market-wide condition relating to the Index, any Component Stock and/or the relevant foreign exchange rate to convert any applicable amount or value into the Index Currency, would be unable, after using commercially reasonable efforts, to acquire, establish, re-establish,

substitute, maintain, terminate, unwind, or dispose of all or a material portion of any hedge position relating to the Index, such Component Stock and/or such foreign exchange rate, including any event (including an unscheduled early closure of the relevant exchange) that disrupts or impairs the ability of market participants in general to effect transactions in, or obtain market values for, a Component Stock on the relevant exchange that the Index Sponsor determines is material or any suspension of, or limitation imposed on, trading by the relevant exchange of a Component Stock, whether by reason of movements in price exceeding limits permitted by the relevant exchange relating to such Component Stock or otherwise, that the Index Sponsor determines is material; or

- (ii) a systems failure, natural or man-made disaster, act of God, armed conflict, act of terrorism, riot or labour disruption or any similar intervening circumstance that is beyond the reasonable control of the Index Sponsor occurs and that the Index Sponsor determines is likely to have a material effect on the Index, any Component Stock and/or the relevant foreign exchange rate to convert any applicable amount or value into the Index Currency; or
- (iii) for any reason the Weight Calculation Agent is unable to and/or does not fulfil its obligations at the required time in respect of a Basket Rebalancing, or Axioma, Inc. ceases to be the Weight Calculation Agent,

(each, a "**Disruption Event**" and together, the "**Disruption Events**") then the Index Sponsor may take, or instruct the Index Calculation Agent to take, one or more of the following actions:

- (a) suspend the calculation and publication of the Index Value until the first following Index Business Day on which the Index Sponsor determines, in its discretion, that no Disruption Event which the Index Sponsor determines is material exists in respect of any Component Stock;
- (b) publish an indicative value of the Index in respect of each Index Business Day on which a Disruption Event exists in respect of any relevant stock (and no Index Value will be published);
- (c) postpone any Basket Rebalancing, in whole or in part, and make any relevant adjustments to the methodology for calculating the Index that the Index Sponsor deems appropriate to account for such postponement of such Basket Rebalancing;
- (d) use the determination made by the Index Sponsor in its commercially reasonable judgement as to the price of an affected Component Stock and/or affected foreign exchange rate; and/or
- (e) determine that an affected Component Stock should be removed from the Basket and make any relevant adjustments to the methodology for calculating the Index Value that the Index Sponsor deems appropriate to account for such removal.

9. Availability and Publication of the Index Value, Changes in Methodology, and Termination of the Index

Corrections

In the event that the value of any Component Stock or foreign exchange rate which is utilised for any calculation or determination in respect of the Index is subsequently corrected, the Index Calculation Agent may, if practicable, use such corrected value for the purpose of such calculation or determination, and, to the extent necessary and practicable, as determined by the Index Calculation Agent, may adjust any prior calculation or determination.

In the event that the Component Stocks or their corresponding Weights in the Basket determined by the Weight Calculation Agent in respect of a Basket Rebalancing are subsequently corrected, the Index Calculation Agent will not use any corrected values and will use the Component Stocks and their Weights in the Basket notified to it prior to the occurrence of such Basket Rebalancing.

Index Publication

The Index Sponsor intends to make the Index Value available in respect of each Index Business Day, subject to the right of the Index Sponsor to suspend or discontinue publication at any time and for any reason in its sole and absolute discretion.

The Index Value for each Index Business Day is published on Bloomberg under the ticker GSRPEXEN Index (the "**Index Value Publication Data Source**") and on such other information sources as the Index Sponsor may select from time to time in its sole and absolute discretion.

The Index Value published on the Index Value Publication Data Source will be rounded to 2 decimal places.

Changes in Methodology and Termination of the Index

While the Weight Calculation Agent and the Index Calculation Agent currently employ the Methodology as summarised in this document to determine the Weights and Component Stocks and to calculate the Index Value, respectively, it is possible that market, legal, regulatory, judicial, financial, fiscal or other circumstances (including the inability of the Weight Calculation Agent to fulfil its obligations in respect of the Index, by reason of termination or resignation of its appointment as such or otherwise) will arise that would, in the view of the Index Sponsor, necessitate or make desirable a modification or change of the Methodology in order to preserve the ability of the Index to accomplish its objectives. The Index Sponsor has the right to make such changes to the Methodology as the Index Sponsor may, in its sole and absolute discretion, determine to be necessary as a result of such market, legal, regulatory, judicial, financial, fiscal or other circumstances. The Index Sponsor has policies and procedures in place governing the frequency with which it conducts internal reviews and approvals with respect to the Methodology.

In the event that any discrepancies or ambiguities arise in the calculation of the Index Value or determining the Component Stocks or Weights, the Index Sponsor will resolve such discrepancies or ambiguities and, if necessary for resolution, make changes to the composition of the Basket or to the Methodology.

The Index Sponsor may, at any time, for any reason, and without notice, change the Index Information Publication Data Source or the Index Value Publication Data Source, in its sole and absolute discretion.

The Index Sponsor may, at any time, for any reason, and without notice, in its sole and absolute discretion, change the frequency of publication of the Index Value.

The Index Sponsor may, at any time, for any reason (including, without limitation, because it is no longer possible or practicable to calculate the Index Value), and without notice, in its sole and absolute discretion, terminate the calculation and publication of the Index. None of the Index Sponsor, the Weight Calculation Agent or the Index Calculation Agent accept any liability to any person for publishing or not continuing to publish for any period of time any Index Value on any particular data source or any particular time.

The Index Sponsor owns the copyright and all other rights in the Index and in this Index description. Any use of any such intellectual property rights may only be made with the prior written consent of the Index Sponsor.

Index Committee

The "**Index Committee**" is responsible for proposing and approving changes to the Methodology as set out below, while the Index Calculation Agent and Weight Calculation Agent are responsible for the day to day implementation of the Methodology and for the calculation of the Index Value. The Index

Committee is comprised of two full-time employees of the Index Sponsor or its affiliates and two external members.

The role, responsibilities and powers of the Index Committee are limited to proposing and approving changes to the Methodology (including to the Investment Factors Eligible Countries and Universe Filter) and to any data obtained from a data source which is used to calculate the Index Value in circumstances where market, legal, regulatory, judicial, financial, fiscal or other circumstances that would, in the view of the Index Committee, necessitate or make desirable a modification or change of the Methodology in order to preserve the ability of the Index to accomplish its objectives.

In addition, the Index Committee may make proposals to cure, correct or supplement discrepancies, ambiguities, defective provisions, errors, omissions and inconsistencies and to make administrative changes that are not economically significant.

In particular, if the aggregate notional amount of products linked to the Index (or any other indices which are sponsored by the Index Sponsor and which use a similar methodology as the Index) exceeds EUR 600 million, as determined by the Index Sponsor, then the Index Committee may (i) change the Methodology such that a Basket Rebalancing is executed over more than one Index Business Day, or that Basket Rebalancings occur more frequently, with the aim of reducing the liquidity impact of hedging transactions in relevant markets and/or (ii) amend one or more of the constraints used to determine the composition of the Basket. Any such changes or actions will be publicly announced as promptly as is reasonably practicable and normally prior to their effective date on the Index Information Publication Data Source.

The Index Calculation Agent and the Weight Calculation Agent may from time to time consult the Index Committee on matters of interpretation with respect to the Methodology.

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

RISK FACTORS

Risk factors relating to a direct notional investment in the Index are set out below. This description does not describe all of the risks associated with a direct notional investment in the Index. Risk factors in relation to a transaction or financial product which is linked to the performance of the Index may also be set out in the relevant documents in respect of such transaction or financial product.

No assurance can be given that the methodology underlying the Index will be successful in producing positive returns or that the Index will outperform any other investment strategy

There can be no assurance that the Index will be successful at producing positive returns consistently or at all. The Index Sponsor makes no representation or warranty, express or implied, that the Index will produce positive returns at any time.

Furthermore, it should be noted that the results that may be obtained from investing in any financial product linked to the Index or otherwise participating in any transaction linked to the Index may be significantly different from the results that could theoretically be obtained from a direct investment in the Component Stocks in respect of the Index.

Historical levels of the Index should not be taken as an indication of its future performance

Past performance of the Index is no guide to its future performance. It is impossible to predict whether the Index Value will rise or fall. The actual performance of the Index during any future period may bear little relation to the historical performance of the Index.

The Index has limited historical performance data

Information about the past performance of the Index can be obtained from the Index Value Publication Data Source. As limited historical performance data exist with respect to the Index and the Component Stocks, any investment, the return of which is linked to it or them, may involve greater risk than an exposure linked to indices or strategies with a proven track record. While a longer history of actual performance could provide more reliable information on which to assess the validity of the Index and the proprietary algorithm and on which to base an investment decision, the fact that the Index is relatively new does not allow this.

The Index is not actively managed

The Methodology used to select Component Stocks and the Weights allocated to each such Component Stock on an Observation Day are determined by applying an algorithm operating within pre-determined rules. There will be no active management of the Index so as to enhance returns beyond those embedded in the Index.

Market participants are often able to adjust their investments promptly in view of market, political, financial or other factors, and an actively managed product could potentially respond more directly and appropriately to immediate market, political, financial or other factors than a non-actively managed index. In contrast, the Index will generally only adjust the Component Stocks on a Rebalancing Day.

No assurance can be given that the Index will be successful in capturing risk premia

There is no guarantee that the Index will be successful at providing a positive exposure to risk premia, in particular as a result of the optimisation constraints, or that any such premia will persist in any particular market over time.

The Investment Factors can change, cease to exist, and/or lead to negative expected returns

As a result of changes in market structure and/or due to increased investment in products attempting to capture the Investment Factors or other similar investment themes, the Investment Factors may change, cease to exist, and/or lead to negative expected returns over any time period. The Index will not be adjusted to take account of any such changes.

The notional investment exposure provided by the Index is purely synthetic and an investor in the Index will not have any legal or beneficial interest in any Component Stock

A notional investment in the Index does not constitute a direct or indirect purchase or other acquisition or assignment of any interest in any Component Stock. The notional investment exposure provided by the Index is purely synthetic. As such, (i) the risks and returns of an investment linked to the Index may differ significantly from a cash investment in the relevant Component Stocks, and (ii) an investment linked to the Index will not make an investor a holder of, or give an investor a direct investment position in, or any right with respect to, any Component Stocks or any other stock.

The Weight attributed to the Component Stocks may not be the optimal set of weights

The Index uses the Axioma Portfolio Optimizer™ software package and the data contained therein in order to calculate the Weights of the Component Stocks in the Basket. The Optimiser uses a pre-defined set of optimisation routines. If the Index employed a different optimiser, the final set of weights selected might be different and possibly materially so. As such, the performance of the Index could be materially different if the Index Sponsor or Weight Calculation Agent replaces the Optimiser and/or the Risk Model at any time. There is no guarantee that the Optimiser will determine the optimal set of weights and it is possible that there exist alternative sets of weights that satisfy the relevant 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. Different optimisers may be more or less likely to determine the optimal set of weights for the Index, and using them could lead to a different performance of the Index.

There can be no assurance that the rebalancing algorithm will optimise the performance of the Basket

The algorithm used to determine the composition of the Basket operates to vary the exposure of the Basket to Component Stocks according to the Factor Scores and the other investment, trading and execution constraints described above. There can be no assurance that the algorithm will have the effect of positioning the Basket optimally with respect to the performance of each Component Stock over any period. In particular, the algorithm is capable of holding a long position in a Component Stock during periods in which the value of that Component Stock is declining. In such circumstances, there could be a material negative impact on the performance of the Index.

Furthermore, the universe of potential stocks that could comprise the Basket is obtained from the Risk Model. Were the Index to select stocks from an alternative list or benchmark index, the profile of the stocks in the Basket over time may not be the same, and could generate greater returns overall.

Constraint Satisfaction, Post-Processing and Assumed Notional

As set out in the section headed "Optimisation Fallback Provisions and Rescaling", certain constraints will be relaxed if there are no feasible solutions to the optimisation that satisfy all constraints. In that case, depending on the number of constraints relaxed to obtain a solution, the portfolio may have a higher trading liquidity, holding liquidity, maximum weight and/or turnover than would otherwise be the case, potentially leading to higher transaction costs, potential market impact from hedging activity, more concentrated positions and/or lower overall performance. In addition, between rebalancings, it is possible that the Weights of the Component Stocks will change and may no longer satisfy the constraints due to changes in risk, volume, relative weight of each Component Stock, and other market conditions.

As stated in "Optimisation Fallback Provisions and Rescaling", the final Basket of Component Stocks is the result of certain post-processing. This Basket may have worse performance than a Basket without any post-processing.

At any point in time, it is possible that the actual notional amount of products linked to the Index will be lower or higher than the Assumed Notional used in the trading liquidity and holding liquidity constraints. This could potentially mean that the Index would have reduced performance when compared to a portfolio which has an actual notional equal to the assumed notional.

Missing Data

If Eligible Stocks are removed because data is missing (in the Risk Model, other data sources, or more generally as specified in "Determination of the Weights"), such stocks will not be considered for inclusion in the optimisation. This may have a material impact on the performance of the Index.

Reliance on Axioma, Inc. as Weight Calculation Agent

The Index relies on the Weight Calculation Agent to fulfil certain obligations in respect of each Basket Rebalancing, including determining the relevant Weights. If the Weight Calculation Agent does not, and/or is unable to, perform its obligations as described herein the performance of the Index is likely to be materially affected. In such cases the Index Sponsor may postpone one or more Basket Rebalancings until the required data are available from the Weight Calculation Agent. If the appointment of Axioma, Inc., as Weight Calculation Agent terminates for any reason it is likely that the performance of the Index will be impaired, possibly permanently. If for any reason, including as a result of such termination, the Risk Model ceases to be available it is likely that the Index Sponsor will be required to change the Methodology in order to continue determining the Index.

Reliance on Axioma Risk Model

The Index relies on the Axioma Risk Model. If risk or Beta had been estimated using a different methodology, or if another Risk Model had been used, the performance of the Index could be different, potentially materially so. Data errors or inaccuracies in the Risk Model may impact the performance of the Index. Additionally, the Risk Model may be amended from time to time, potentially materially so, and this may impact the ability of the Index to provide exposure to the Investment Factors and the performance of the Index.

Reliance on S&P Dow Jones Indices as Index Calculation Agent

The Index relies on the Index Calculation Agent to determine the Index Value amongst other obligations. If the Index Calculation Agent does not, and/or is unable to, perform its obligations as described herein the determination and publication of the Index Value is likely to be materially delayed. In such cases the Index Sponsor will aim to replace the Index Calculation Agent but there is no guarantee that this will be achieved in a reasonable timeframe and the determination and publication of the Index Value may be delayed for a material period of time. This is likely to have an adverse effect of products linked to the Index, including possible termination.

Reliance on the Index Calculation Agent Methodology

The Index relies on the Index Calculation Agent Methodology to determine, amongst other things, how corporate actions are applied to Component Stocks. Using a different methodology could lead to different outcomes and as such changes to the Index Calculation Agent Methodology could have a material impact on the Index. The Index Sponsor may not be able to influence changes to the Index Calculation Agent Methodology.

Exchanges closed on Observation and Rebalance Days

The universe of potential stocks is broad and covers multiple jurisdictions and stock exchanges. It is likely that on any Observation Day and/or Rebalancing Day the primary exchanges for a significant proportion of the Component Stocks in the Basket will be closed. Where the relevant primary exchange is closed, the Index will use the previous closing price for a stock. As a result, previous closing prices may be used for a significant proportion of the universe of potential stocks when determining Component Stocks and their Weights. This may impact the performance of the Index as compared to a methodology that required all exchanges to be open on an Observation Day and/or Rebalancing Day.

Exact Rebalancing Days unavailable

Given the universe of potential stocks is broad and covers multiple jurisdictions and stock exchanges, the business day calendar used to determine the frequency of Rebalancing Days is a sub-set of the entire holiday calendar for all possible jurisdictions and stock exchanges. The exact calendar used by the Index will not be made public.

The Weights assigned to the Component Stocks will be published on a delayed basis

The Weights assigned to the Component Stocks will be published on a delayed basis following each Rebalancing Day. Investors in products linked to the Index may not be entitled to further information from the Index Sponsor regarding the Weights. The Index Sponsor may also have entered into non-exclusive licensing agreements with certain of its third party data suppliers in order to source the necessary data to calculate the Index. The formalities necessary to obtain access to such figures may deter potential investors from buying a product linked to the Index on the secondary market.

Information about the Index is no guarantee of the performance of the Index

Certain presentations and historical analysis ("**Back-testing**") or other statistical analysis materials in respect of the operation and/or potential returns of the Index which may be provided are based on simulated analyses and hypothetical circumstances to estimate how the Index may have performed prior to its actual existence. The Index Sponsor provides no assurance or guarantee that the Index will operate or would have operated in the past in a manner consistent with those materials. As such, any historical returns projected in such materials or any hypothetical simulations based on these analyses, which are provided in relation to the Index, may not reflect the performance of, and are no guarantee or assurance in respect of the performance or returns of, the Index over any time period. Furthermore, any Back-testing of the Index is based on information and data provided to the Index Sponsor by third parties. The Index Sponsor has not independently verified or guaranteed the accuracy and/or the completeness of such information or data provided and is not responsible for any inaccuracy, omission, mistake or error in such information, data and/or Back-testing.

Index Inception Date

The Index has only been calculated since the "Index Inception Date", being a date determined by the Index Sponsor as the date on which the Index Value would have been equal to the Index Initial Value based on Back-testing (using simulated analyses and hypothetical circumstances, as described in more detail above). As such, any historical returns or any hypothetical simulations based on such back-tested data or analyses with respect to the period from the Index Inception Date to the date on which investment products linked to the Index are first implemented (which may be materially later than the Index Inception Date), may not reflect the performance of, and are no guarantee or assurance in respect of the performance or returns of, the Index over any time period.

The Index Sponsor, Weight Calculation Agent and Index Calculation Agent rely upon third party and other external and internal data sources which may be inaccessible and/or inaccurate, and the inputs used by them to run the Index calculations may affect the Index Value

Each of the Index Sponsor, the Weight Calculation Agent and the Index Calculation Agent may rely upon third party brokers or external dealers and other external and internal sources to obtain certain inputs necessary to determine the Weights of the Component Stocks in the Basket and/or to compute the Index Value. The inability of the Index Sponsor, the Weight Calculation Agent and/or the Index Calculation Agent to source necessary data to calculate the relevant formulae of the Index may affect the Index Value. In addition, none of the Index Sponsor, the Weight Calculation Agent or the Index Calculation Agent makes any warranty as to the correctness or completeness of that information and takes no responsibility for the accuracy of such data or the impact of any inaccuracy of such data on the Index Value.

Products linked to the Index may be exposed to more or less risk, or perform better or worse, based upon the inputs received from the above suppliers or sources, than an actual investment in or linked to one or more of the Component Stocks.

The Index could be changed or become unavailable

The Index Committee has the right to alter the Methodology used to calculate the Index Value or the formulae underlying the Index, and an alteration may result in a decrease in the Index Value. As such, aspects of the Index could change in the future, including, without limitation, the Methodology and third party data sources. Further details of such potential changes are set out above. Any changes may be made without regard to the interests of a holder or counterparty in respect of any product linked to the Index.

The deductions to the Index Value representing the Transaction Cost are linked to the magnitude and frequency of changes to the number of shares comprising the Basket

The Index is calculated so as to include deductions that are intended to synthetically replicate the transaction costs that an investor would incur if it were to enter into and maintain a series of direct investment positions to provide the same exposure to the Component Stocks as the Index. The amounts of such deductions calculated in respect of any relevant day are linked to the absolute change in Weights assigned to the Component Stocks on each Rebalancing Day. A Hedging Party that has hedged its exposure to Component Stocks will benefit if the actual costs that it incurs in carrying out its hedging activity are less than the synthetic Transaction Cost Rates applied in respect of the Index.

Investors should also note that the Transaction Cost in respect of a Component Stock or the relevant exchange will be increased if the Index Sponsor determines that the costs that a hypothetical investor would incur in respect of any amount charged by an independent broker in the relevant markets with respect to investing in, rebalancing, maintaining positions in, or synthetically replicating the performance of, any Component Stock have increased by more than 10% of such costs.

Deductions representing the Transaction Cost may therefore be significant if there is a high turnover of stocks in the Basket and the change in Weights on a Rebalancing Day is large. The negative impact on the performance of the Index of deductions representing the Transaction Cost could be material.

Dividends are subject to assumed tax rates which will have a negative impact on the Index

Any announced dividend in respect of a Component Stock comprising the Basket will be reduced by an assumed tax rate (which may be zero), which is intended to reflect the withholding tax rate levied, or the potential tax rate that may be levied, by the country of incorporation or residence of the issuer of such Component Stock. The assumed tax rate will be determined by the Index Calculation Agent using the Index Calculation Agent Methodology based on its view of applicable law and/or regulations, observable sources and/or market practice. The assumed tax rates may be amended from time to time by the Index Calculation Agent. If the assumed tax rate in respect of one or more Component Stock is increased then the Index Value may be affected.

A Hedging Party that has hedged its exposure to Component Stocks will benefit if the effective rate of withholding tax that it incurs through its hedging activity is less than the synthetic tax withholding applied in respect of the Index.

The Index Sponsor's Hedging Activity may affect the level of the Index

By executing products linked to the Index ("**Linked Products**"), Goldman Sachs International and/or its affiliates ("**GS**") will have an exposure to the Index and its Component Stocks. GS will take risk positions to hedge this exposure in its sole discretion and in a principal capacity. Investors in any Linked Product will not have any rights in respect of any GS hedge positions, including any shares, futures, options, or currencies. GS will execute its hedging activity by trading in Component Stocks on or before the related Rebalancing Day. Such trading may have an adverse impact on the performance of the Index. GS's hedging activity, and hence the size of such impact, will be linked to the amount of new and outstanding Linked Products at the relevant time. Additionally, GS may generate revenues if it executes its hedging activity at different levels from those used to determine the value of the Index or on any Basket Rebalancing. Such hedging activity could generate significant returns to GS that will not be passed on to investors in Linked Products.

The Index does not allow short exposure to stocks

The Index provides exposure to the Component Stocks only through long positions. Therefore, while the Index allows the weight of a Component Stock to be zero, such weight may not be negative (thus preventing short positions).

Some of the Component Stocks are subject to currency exchange risk

Some of the Component Stocks may be denominated in currencies other than the Index Currency. The Index will notionally convert the value of such Component Stocks into the Index Currency at prevailing exchange rates for purposes of determining the Index Value as set out above. The exposure of these Component Stocks to movements in currency exchange rates will depend on the extent to which such currencies strengthen or weaken against the Index Currency and the relative weighting of such Component Stocks. The Index does not seek to hedge any foreign currency exposure embedded in the Basket of Component Stocks and will not provide any hedge against any such foreign currency risk.

A cancellation or failure to publish in respect of the Index may result in adjustment or termination of products linked to the Index

The Index was created by the Index Sponsor, who has the right to permanently cancel the Index at any time. A permanent cancellation of the Index or a failure by the Index Sponsor to calculate or announce the Index Value may constitute a disruption event in respect of certain products linked to the Index. Upon the occurrence of such events, the calculation agent with respect to such products may have the discretion to determine the Index Value, which could materially affect the value of any such product. In certain circumstances, such calculation agent may have the discretion to terminate or redeem such product at its market price, as determined by such calculation agent.

The Index Sponsor and the Index Calculation Agent have the discretion to make determinations that could materially affect the Index and create conflicts of interest

None of the Index Sponsor, Weight Calculation Agent or Index Calculation Agent owe any fiduciary duties in respect of the Index. The Index Sponsor has a certain amount of discretion in the event of Disruption Events in respect of the Index or a Component Stock. The Index Calculation Agent also has a certain amount of discretion in the event of Extraordinary Events in respect of the Index or a Component Stock.

Determinations made by the Index Sponsor and the Index Calculation Agent could adversely affect the Index Value or any product linked to the Index and the exercise by the Index Sponsor and the Index Calculation Agent of their discretion could present them with a conflict of interest. In making those determinations, the Index Sponsor and the Index Calculation Agent will not be required to, and will not, take the interests of any investor of any such product into account or consider the effect their determinations will have on the value of such a product. All determinations made by the Index Sponsor and the Index Calculation Agent shall be conclusive for all purposes and will bind all holders and counterparties in respect of any products linked to the Index. The Index Sponsor and the Index Calculation Agent shall not have any liability for such determinations.

Where Goldman Sachs is required or entitled to make a determination in any capacity in relation to the Index pursuant to the Methodology and that determination involves the exercise of expert judgement or discretion (other than those that are purely mechanical and, where relevant, implemented in accordance with the Methodology), then that expert judgement or discretion will be exercised in good faith and in a commercially reasonable manner and will be subject to its policies and procedures in effect from time to time.

Index Sponsor determination of the price of Component Stocks

To the extent that a Disruption Event has occurred in respect of a Component Stock for any Index Business Day, the Index Sponsor may determine the price of the relevant Component Stock in its commercially reasonable judgment, and in making such determination, the Index Sponsor may, but shall not be obliged to, have reference to the most recently available price of the relevant Component Stock. If the Index Sponsor makes such a determination in respect of the price of an affected Component Stock, it is likely that such price would be different from what it would have been if a Disruption Event had not occurred and this may have an adverse effect on the Index Value.

Index Calculation Agent determination of adjustments to Component Stocks

To the extent that an Extraordinary Event has occurred in respect of a Component Stock for any Index Business Day, the Index Calculation Agent may determine adjustments to the Index Value and/or the price of a Component Stock in accordance with the Index Calculation Agent Methodology. The determinations will be made by the Index Calculation Agent in its capacity as a professional calculation agent with extensive experience of acting as calculation agent to other indices or products. Such determinations may however differ from determinations made in respect of other indices or products by other third parties, potentially materially so.

CONFLICTS OF INTEREST AND POTENTIAL CONFLICTS OF INTEREST

Overview of Goldman Sachs' Roles

Members of Goldman Sachs play multiple roles in connection with the Index:

- (i) The Index is designed by, and is operated in accordance with, a methodology developed by the Index Sponsor. Among other things, the Index Sponsor will set the parameters within which the Index operates. The Index Sponsor does not have any obligation to ensure that the Index Calculation Agent continues to calculate and publish the Index Value. Except in limited circumstances, the Index Sponsor does not exercise any discretion in relation to the operation of the Index. The Index Sponsor owes no fiduciary duties to any person in respect of the Index.
- (ii) Goldman Sachs is a full service financial services group and, consequently, may be engaged in a range of banking, trading and other activities with respect to any Eligible Stock that could affect the Index Value either positively or negatively.
- (iii) Goldman Sachs may from time to time have a direct or indirect ownership interest in any of the Weight Calculation Agent, Index Calculation Agent and other third party data providers.
- (iv) As at the date of this document, Goldman Sachs has a non-voting minority ownership interest in Axioma, Inc., the Weight Calculation Agent. The size and nature of such ownership interest may change from time to time.

Potential Conflicts of Interest

Potential conflicts of interest may arise in relation to Goldman Sachs' multiple roles in connection with the Index. Although Goldman Sachs will perform its obligations in a manner that it considers commercially reasonable, there may be conflicts between the roles it performs in respect of the Index and its own interests. In particular, Goldman Sachs may have, or enter into transactions to create, a physical, economic or other interest (including an adverse and/or short interest, as the case may be) in the Index, products linked thereto, stocks comprising the Eligible Universe and/or the Basket from time to time and investments linked to such stocks and may exercise remedies or take other action with respect to its interests as it deems appropriate.

The following actions could adversely affect the Index Value:

- (i) Goldman Sachs may actively trade or act as a counterparty to, as applicable, products linked to the Index, stocks in the Eligible Universe and the Basket, any investments linked to such stocks and numerous related investments. These activities could adversely affect the Index Value, which could in turn affect the return on, and the value of, any products linked to the Index.
- (ii) Goldman Sachs may have access to information relating to the Index, products linked to the Index, stocks in the Eligible Universe and the Basket, and any investments linked to such stocks. Goldman Sachs is not obliged to use that information for the benefit of any person acquiring or entering into any products linked to the Index.
- (iii) Certain activities conducted by Goldman Sachs may conflict with the interests of those acquiring or entering into products linked to the Index. It is possible that Goldman Sachs could receive substantial returns in respect of these activities while the value of any product linked to the Index may decline. For example:
 - (a) Goldman Sachs and other parties may issue or underwrite additional securities or trade other financial or derivative instruments or investments linked to the Index or other similar strategies or stocks in the Eligible Universe and the Basket. An increased level of investment and trading in these securities, instruments or investments may negatively

affect the performance of the Index and could affect the Index Value and, therefore, the amount payable at maturity (or on any other payment date) on any products linked to the Index and the value of any such products before that date. Such securities, instruments or investments may also compete with any products linked to the Index. By introducing competing products into the marketplace in this manner, Goldman Sachs could adversely affect the market value of any products linked to the Index and the amount paid by it on such products at maturity (or on any other payment date). To the extent that Goldman Sachs serves as issuer, arranger, agent, underwriter or counterparty in respect of those securities or other similar instruments or investments, its interests in respect of those securities, instruments or investments may be adverse to the interests of a holder or counterparty in respect of any products linked to the Index.

- (b) Although Goldman Sachs is not obliged to do so, it will hedge its exposure or potential or expected exposure to the Index, any products linked thereto, stocks in the Eligible Universe and the Basket or any investment linked to such stocks with an affiliate or a third party. Such affiliate or third party, in turn, is likely to hedge any of its exposure or potential or expected exposure, directly or indirectly, including through transactions taking place on the futures and options markets. Goldman Sachs may adjust or unwind such hedges by purchasing or selling products linked to the Index, stocks in the Eligible Universe and the Basket, any investments linked to such stocks or any other product on or before the date the Index is valued for purposes of any investments linked to the Index and/or at different levels. Goldman Sachs may also enter into, adjust or unwind hedging transactions relating to other instruments linked to the Index or any stocks in the Eligible Universe and the Basket including at times and/or levels which are different from those used to determine the level of the Index Value. Any such hedging activity may adversely affect the Index Value and the value of any products linked thereto. In addition:
 - (A) Goldman Sachs could receive substantial returns with respect to these hedging activities while the Index Value and/or the value of any product linked to the Index may decline.
 - (B) If Goldman Sachs has hedged its exposure to Component Stocks and incurs an effective rate of withholding tax that is less than the synthetic tax withholding applied in respect of the Index Goldman Sachs could receive substantial returns.
 - (C) Goldman Sachs could receive substantial returns if it trades in the Component Stocks on or before the related Rebalancing Day and/or at levels which are different from the levels specified in the methodology for determining the Index Value. Such trading may have an adverse impact on the level at which a Basket Rebalancing occurs, which will result in an adverse impact on the performance of the Index. In addition, such trading could generate significant returns to Goldman Sachs that will not be passed on to the investors in products linked to the Index.
- (c) Goldman Sachs may also engage in trading for its proprietary accounts, for other accounts under its management or to facilitate transactions, including block transactions, on behalf of customers relating to one or more products linked to the Index, any stocks in the Eligible Universe and the Basket and/or any investment linked to such stocks. In the course of these transactions, Goldman Sachs' customers may receive information about the Index or the stocks in the Eligible Universe and the Basket before it is made available to other investors. Any such activities could also adversely affect the Index Value directly or indirectly by affecting the value of the Component Stocks or the investments linked to such stocks and, therefore, the market value of any products linked to the Index and the amount paid on any such product.
- (iv) In its capacity of Index Sponsor, Goldman Sachs International will have discretion under certain circumstances to make various determinations that affect the Index and products linked to the Index, including, among others, the occurrence of Disruption Events. The exercise by Goldman Sachs International of this discretion could adversely affect the value of any such product linked to the Index. It is possible that the exercise by Goldman Sachs International of its discretion

may result in substantial returns in respect of Goldman Sachs' trading activities for its proprietary accounts, for other accounts under its management or to facilitate transactions on behalf of customers relating to one or more products linked to the Index, and/or the Components Stocks or any investment referenced by or linked to the stocks in the Eligible Universe or the Basket.

- (v) Goldman Sachs may publish research, express opinions or provide recommendations (for example, with respect to stocks in the Eligible Universe or the Basket) that are inconsistent with investing in products linked to the Index, and which may be revised at any time. Any such research, opinions or recommendations may or may not recommend that investors buy or hold the relevant stocks and could affect the value and / or performance of the Index or of products linked to the Index.

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