



**PROSPECTUS SUPPLEMENT NO. 3
TO THE BASE PROSPECTUS DATED 15 JULY 2022**

GOLDMAN, SACHS & CO. WERTPAPIER GMBH
(Incorporated with limited liability in Germany)

as Issuer

GOLDMAN SACHS FINANCE CORP INTERNATIONAL LTD

(Incorporated with limited liability in Jersey)

as Issuer

GOLDMAN SACHS INTERNATIONAL
(Incorporated with unlimited liability in England)

as Issuer and, in respect of certain Securities only, as Guarantor

THE GOLDMAN SACHS GROUP, INC.

(A corporation organised under the laws of the State of Delaware)

in respect of certain Securities only, as Guarantor

**SERIES P PROGRAMME FOR THE ISSUANCE OF
WARRANTS, NOTES AND CERTIFICATES**

This Prospectus Supplement

This prospectus supplement (the "**Prospectus Supplement**") to the base prospectus dated 15 July 2022 prepared by Goldman, Sachs & Co. Wertpapier GmbH ("**GSW**") as issuer, Goldman Sachs Finance Corp International Ltd ("**GSEFI**") as issuer, Goldman Sachs International ("**GSI**") as issuer and as guarantor in respect of certain Securities only and The Goldman Sachs Group, Inc. ("**GSG**") as guarantor in respect of certain Securities only (the "**Original Base Prospectus**") under their Series P programme for the issuance of warrants, notes and certificates with respect to the Securities (the "**Programme**"), constitutes a supplement to the Base Prospectus for the purposes of Article 23(1) of Regulation (EU) 2017/1129 (as amended, the "**EU Prospectus Regulation**") and should be read in conjunction with Prospectus Supplement No. 1 to the Original Base Prospectus dated 27 July 2022 and Prospectus Supplement No. 2 to the Original Base Prospectus dated 25 August 2022 (the Original Base Prospectus as so supplemented, the "**Base Prospectus**"). On 15 July 2022, the *Commission de Surveillance du Secteur Financier* (the "**CSSF**") approved the Base Prospectus for the purposes of Article 6 of the Luxembourg Law dated 16 July 2019 on prospectuses for securities.

Terms defined in the Base Prospectus have the same meaning when used in this Prospectus Supplement unless otherwise defined herein. This Prospectus Supplement shall form part of and be read in conjunction with the Base Prospectus.

Right of withdrawal

In accordance with Article 23(2a) of the EU Prospectus Regulation, investors in the European Economic Area who have already agreed to purchase or subscribe for Securities issued under the Programme before this Prospectus Supplement is published and where the Securities have not yet been delivered to them at the time when the significant new factor, material mistake or material inaccuracy to which this Prospectus Supplement relates, arose or was noted have the right, exercisable until 14 September 2022, which is three working days after the publication of this Prospectus Supplement, to withdraw their acceptances. Investors may contact the relevant Authorised Offeror(s) (as set out in the Final Terms of the relevant Securities) should they wish to exercise such right of withdrawal.

Responsibility

Each of GSI, GSW, GSFCI and GSG accepts responsibility for the information given in this Prospectus Supplement and confirms that, having taken all reasonable care to ensure that such is the case, the information contained in this Prospectus Supplement is, to the best of their knowledge, in accordance with the facts and does not omit anything likely to affect its import.

Purpose

The purpose of this Prospectus Supplement is to supplement the information in relation to Goldman Sachs' proprietary indices by including a description of a further Goldman Sachs proprietary index and making certain other consequential changes.

Amendments and supplements to certain information in the Base Prospectus

The Base Prospectus is amended and supplemented as follows:

1. Amendments to the section entitled "Risk Factors"

The information in section 5.5 entitled "*Risks associated with Proprietary Indices as Underlying Assets*" is amended and supplemented by inserting the following new sub-paragraph immediately after sub-paragraph (c) on pages 88 to 93:

"(d) *Specific risks associated with the Goldman Sachs Global Diversified Multi-Asset 5% Index including its underlying and component indices and strategies*

*Risk associated with the Goldman Sachs Global Diversified Multi-Asset 5% Index (for purposes of this sub-section (d) only, the "**Index**"), the Goldman Sachs Diversified Multi-Asset Basket EUR ER Index ((for purposes of this sub-section (d) only, the "**Underlying Index**"), the Goldman Sachs US and EUR Government Bond Basket USD ER Strategy (the "**Govt Bond Strategy**"), the US Government Bond Futures Rolling Strategy Index (the "**UST Futures Index**"), the European Government Bond Futures Rolling Strategy Index (the "**Euro Bond Futures Strategy Index**" and, together with the UST Futures Index, the "**Bond Indices**"), the Goldman Sachs Commodity Focus Basket USD ER Index (for purposes of this sub-section (d) only, the "**Commodity Index**"), the Goldman Sachs EUA USD Strategy (the "**EUA USD Strategy**"), the Goldman Sachs Enhanced Strategy MOZE on S&P GSCI Carbon Emission Allowances EUA (EUR) Index (the "**EUA EUR Strategy**"), the EUR Goldman Sachs Overnight Money Market Index (the "**EUR Money Market Index**"), the EUR STR Goldman Sachs Overnight Money Market Index (the "**EUR STR Money Market Index**") and the USD Goldman Sachs Overnight Money Market Index (the "**USD Money Market Index**" and, together with the EUR Money Market Index and the EUR STR Money Market Index, each a "Money Market Index" and together the "**Money Market Indices**") are set out below. For the purposes of the risk factors below, each of the Index, the Underlying Index, the Govt Bond Strategy, the Bond Indices, the Commodity Index, the EUA USD Strategy, the EUA EUR Strategy and each Money Market Index, shall be a "**Relevant Strategy**" and any underlying index, financial instrument, asset, price, level, component or other underlying comprising, directly or indirectly, a Relevant Strategy, a "**Strategy Component**".*

(i) *The weights of the Strategy Component may be less than 100%*

The Index's absolute overall exposure to the Strategy Component (being the Underlying Index) may be less than 100%. If the absolute weight of the Strategy Component is less than 100% the Index will have a reduced participation to the Strategy Component and may underperform as compared to an Index where the exposure was greater.

(ii) *Excess Return Strategies will nearly always underperform Total Return Strategies*

The Index is calculated on an excess return basis. Unlike a total return strategy, a strategy which is calculated on an excess return basis does not include the accrual of any amount in relation to a notional interest rate. Thus, the performance of an excess return strategy will nearly always be less than the performance of the equivalent total return strategy.

(iii) *Volatility and Strategy risk*

The Index has a volatility adjustment feature which aims to provide a notional volatility-controlled exposure to the Underlying Index. This is achieved by increasing or decreasing the exposure of the Index to the Underlying Index, based on the historical realized volatility of the Underlying Index relative to a pre-determined Volatility Target. An increase in the realized volatility of the Underlying Index may decrease the exposure of the Index to the Underlying Index and vice versa. The future realized volatility of the Underlying Index may differ from the historical realized volatility of the Underlying Index and as such, the weighting of the Underlying Index and the performance of the Index may be different if it was calculated based on the future realized volatility rather than the historical realized volatility.

(iv) *An investment in the Index may be subject to dilution, which may limit the gains in such investment*

The Index may be subject to dilution if the Reference Volatility exceeds the Volatility Target, such that investors in products linked to the Strategy may not benefit fully from increases in the value of the Underlying Index. Dilution means that the return or loss on an investment is subject to a multiplier decreasing exposure to such investment and reducing the volatility and risk of loss should the value of such investment decline, but reducing the potential gain should the value of such investment increase. Investors should be aware that if the value of the Underlying Index increases or decreases, an investment linked to the Index may not have the same magnitude of increased or decreased value as the Underlying Index.

(v) *The value of the Index is reduced by the deduction of certain costs included in the calculation of the value of the Index and this will negatively impact the return on an investment in Securities linked to the Index*

A strategy deduction rate of one per cent. per annum will be deducted from the value of the Index on a daily basis. Such deduction has the effect of reducing the performance of the Index and consequently the return on an investment in Securities linked to the Index.

Further, the value of the Index will be reduced by the deduction of synthetic costs of establishing and unwinding transactions in respect of the Underlying Index. Such deduction has the effect of reducing the performance of the Index and consequently the return on an investment in Securities linked to the Index.

The Strategy Sponsor (or its affiliates) may benefit if the Index costs (and the component amounts thereof) embedded in the Index exceed the actual servicing costs and/or transaction costs that are incurred by the Strategy Sponsor (or its affiliates) in hedging transactions that may be entered into in respect of such Index, the Strategy Component and/ or any underlying component thereof.

(vi) *No assurance can be given that the volatility adjustment feature will be successful in producing a realized volatility of the Index being equal to the Volatility Target which may negatively affect the performance of the Index, potentially materially so*

The volatility adjustment feature of the Index aims to provide a notional volatility-controlled exposure to the Underlying Index. However, such volatility adjustment feature may lead to a realized volatility which is lower than or exceeds the Volatility Target. Such difference may negatively affect the performance of the Index, potentially materially so.

- (vii) ***The Reference Volatility calculation relies on assumptions as to the number of days in a calendar year over which the returns of the Underlying Index are annualised, which may negatively affect the performance of the Index, potentially materially so***

The calculation of the Reference Volatility computes the realized volatility of the Underlying Index based on several assumptions, including the number of days in a calendar year over which the returns in respect of the Underlying Index are annualised. Such number may lead to a higher or lower Reference Volatility and as a result to a higher or lower exposure of the Index to the Underlying Index. An increased or lower exposure of the Index to the Underlying Index may in turn negatively affect the performance of the Index, potentially materially so.

- (viii) ***As sponsors of Strategy Components, Goldman Sachs Group members have the authority to make determinations that could materially affect a Relevant Strategy and create conflicts of interest***

Goldman Sachs Group members may be the sponsors of Strategy Component(s) of a Relevant Strategy. In that capacity, each of them has the power to make determinations that could materially affect the value of these Strategy Component(s) and, in turn, the value of such Relevant Strategy, and the exercise by such members of their discretion in their capacity as sponsors of such Strategy Components could present them with a conflict of interest.

- (ix) ***Sponsors of Strategy Components have authority to make determinations that could materially affect a Relevant Strategy***

Determinations that the sponsors of the Strategy Component(s) of a Relevant Strategy, including Goldman Sachs Group members, may make in connection with the composition, calculation and maintenance of the Strategy Component(s) may materially affect the value of the Strategy Component(s) and could, in turn, adversely affect the value of such Relevant Strategy. Those sponsors have no obligation to take the interests of the Strategy Sponsor or the holders of Securities linked to the Index into consideration for any reason in carrying out their functions and have generally disclaimed all liability to the extent permitted by law. In addition, the sponsors of the Strategy Component(s) have licensed, and may continue to license, such Strategy Component(s) for use by other market participants, for publication in newspapers and periodicals, for distribution by information and data dissemination services and for various other purposes, any of which may contribute to an increased or decreased level of investment in such Strategy Component(s), which could adversely affect the value of a Relevant Strategy.

- (x) ***Specific risks in respect of the Underlying Index***

- (A) ***Excess Return Strategies will nearly always underperform Total Return Strategies***

The Underlying Index is calculated on an excess return basis. Unlike a total return strategy, a strategy which is calculated on an excess return basis does not include the accrual of any amount in relation to a notional interest rate. Thus, the performance of an excess return strategy will nearly always be less than the performance of the equivalent total return strategy.

- (B) *As some Strategy Components may not be denominated in the Strategy Currency, the Underlying Index may be subject to currency exchange rate risks*

The Underlying Index is calculated in Euro (the "**Strategy Currency**"). While some of the Strategy Components may be denominated in the Strategy Currency, the Underlying Index may also comprise Strategy Components denominated in other currencies. The Underlying Index may therefore be exposed to currency exchange rate risks. The impact on the level of the Underlying Index will depend on the extent to which these other currencies, if any, strengthen or weaken against the Strategy Currency, the relative weight of each such other currency, currency exchange rates vary over time. Changes in a particular currency exchange rate result from the interaction of many factors directly or indirectly affecting economic or political conditions, including rates of inflation, interest rate levels, balances of payment among countries, the extent of governmental surpluses or deficits and other financial, economic, military and political factors, among others.

The Underlying Strategy has an internal simulated currency hedge feature in respect of one or more of its Strategy Components denominated in another currency. Through a series of synthetic transactions, the internal simulated currency hedge feature, if applicable, seeks to offset a substantial portion of the positive or negative effects of currency exchange rate fluctuations in such other currency on the values of such Strategy Component. However, the Underlying Index's internal simulated currency hedge feature will prove ineffective if, and to the extent that, the performance of the relevant money markets and of such Strategy Component move in opposite directions or move in the same direction but to a different extent. As a result of such movements, investors in the Underlying Index will still be subject to the risk of currency fluctuations affecting the value of the Underlying Index. In addition, as the currency hedged levels of such Strategy Component are based on the performance of synthetic cash deposits, the internal simulated currency hedge feature, if applicable, is unlikely to replicate a return exactly equal or similar to the return such Strategy Component that would be available to an investor whose investment currency is the same as that of such Strategy Component.

- (xi) *In respect of each of the Index, the Underlying Index and the Govt Bond Strategy only:*

- (A) *Potential amendment to the methodology of a Relevant Strategy or replacement of a Relevant Strategy to enable the Strategy Sponsor and/or any affiliate to be able to effectively hedge its exposure to the Relevant Strategy and to reduce the impact of such hedging transactions on the relevant markets*

If the Strategy Sponsor determines that the aggregate notional or principal amount of financial products linked to a Relevant Strategy is above a certain threshold it may (a) change the methodology of the Relevant Strategy so that the rebalancing of the Relevant Strategy is executed over one or more additional business days or that the rebalancing of the Relevant Strategy occurs more frequently, (b) replace the Relevant Strategy with a replacement Relevant Strategy which will be identical in all material respects other than the day or days on which the Relevant Strategy is rebalanced and/or (c) make such other adjustments to the Relevant Strategy, in each case, in order to enable the Strategy Sponsor and/or any affiliate to be able to effectively hedge its exposure to such Relevant Strategy and/or to reduce the expected impact of such hedging transactions on the relevant markets. Although such amendments or such replacement would be designed to minimise potential market impact, the performance of the Relevant Strategy may be affected by such amendments or replacement, potentially materially so.

(xii) ***Specific risks in respect of the Commodity Index, the EUA USD Strategy and the EUA EUR Strategy***

(A) ***An investment in the Relevant Strategy is subject to risks associated with foreign commodities markets***

Each of the terminal components included in the Relevant Strategy tracks the performance of one or more commodities in the commodity markets. Such commodities may be represented by commodity futures which (i) trade outside the United States on international exchanges, and/or (ii) are denominated in currencies other than United States dollars. Investments linked to the value of foreign commodity futures contracts involve particular risks.

Certain terminal components included in the Relevant Strategy may be linked to commodity futures contracts on physical commodities on trading facilities located outside the United States. The regulations of the Commodity Futures Trading Commission (the "CFTC") do not apply to trading on foreign trading facilities, and trading on foreign trading facilities may involve different and greater risks than trading on United States trading facilities. Certain foreign markets may be more susceptible to disruption than United States trading facilities due to the lack of a government-regulated clearinghouse system. Trading on foreign trading facilities also involves certain other risks that are not applicable to trading on United States trading facilities. Those risks may include: exchange rate risk relative to the U.S. dollar, exchange controls, expropriation, burdensome or confiscatory taxation, and moratoriums, and political or diplomatic events. It will also likely be more costly and difficult for the Strategy Sponsor, as the sponsor of the Relevant Strategy, to enforce the laws or regulations of a foreign country or trading facility, and it is possible that the foreign country or trading facility may not have laws or regulations which adequately protect the rights and interests of investors in the commodity futures contracts included in the Relevant Strategy. In addition, because foreign trading facilities may be open on days when the value of the Relevant Strategy is not published, the value of the commodity futures contracts included in Relevant Strategy may change on days when the level of the Relevant Strategy is unavailable.

(B) ***Suspension or disruptions of market trading in the commodity and related options futures markets may adversely affect the value of the Relevant Strategy***

The commodity markets are subject to temporary distortions or other market disruptions due to various factors, including the lack of liquidity in the markets, the participation of speculators and government regulation and intervention. In addition, U.S. futures exchanges and some foreign exchanges have regulations that limit the amount of fluctuation in futures contract prices that may occur during a single business day. These limits are generally referred to as "daily price fluctuation limits" and the maximum or minimum price of a contract on any given day as a result of these limits is referred to as a "limit price". Once the limit price has been reached in a particular contract, no trades may be made at a different price. Limit prices have the effect of precluding trading in a particular contract or forcing the liquidation of contracts at disadvantageous times or prices. These circumstances could adversely affect the level of the terminal components in the Relevant Strategy and, therefore, the value of the Relevant Strategy and the value of any financial instruments linked to the Relevant Strategy.

(C) ***Commodity prices are characterised by high and unpredictable volatility, which could lead to high and unpredictable volatility of the Relevant Strategy***

Commodity prices, and, consequently, the prices of corresponding commodity futures contracts, are affected by various factors, including, but not limited to, supply and demand, liquidity, weather conditions and natural disasters, government programs and policies, political, military, terrorist and economic events, as set out in more detail below:

- (1) Supply and demand - The planning and management of commodities supplies is very time-consuming. This means that the scope for action on the supply side is limited and it is not always possible to adjust production swiftly to take account of demand. Demand can also vary on a regional basis. Transport costs for commodities in regions where these are needed also affect their prices. The fact that some commodities take a cyclical pattern, such as agricultural products which are only produced at certain times of the year, can also result in major price fluctuations.
- (2) Liquidity - Not all commodities markets are liquid and able to quickly and adequately react to changes in supply and demand. The fact that there are only a few market participants in the commodities markets means that speculative investments can have negative consequences and may distort prices.
- (3) Weather conditions and natural disasters - Unfavourable weather conditions can influence the supply of certain commodities for the entire year. This kind of supply crisis can lead to severe and unpredictable price fluctuations. Diseases and epidemics can also influence the prices of agricultural commodities.
- (4) Governmental programs and policies, national and international political, military and economic events and trading activities in commodities and related contracts - Commodities are often produced in emerging market countries, with demand coming principally from industrialised nations. The political and economic situation is however far less stable in many emerging market countries than in the developed world. They are generally much more susceptible to the risks of rapid political change and economic setbacks. Political crises can affect purchaser confidence, which can as a consequence affect commodity prices. Armed conflicts can also impact on the supply and demand for certain commodities. It is also possible for industrialised nations to impose embargos on imports and exports of goods and services. This can directly and indirectly impact commodity prices. Furthermore, numerous commodity producers have joined forces to establish organisations or cartels in order to regulate supply and influence prices.

These factors may adversely affect the value of the Relevant Strategy and the value of any financial instrument linked thereto in varying ways, and different factors may cause the value and volatility of different commodities to move in inconsistent directions and at inconsistent rates.

- (D) ***Some of the S&P GSCI® Single Commodity Forward Indices (each, an "S&P DJI Relevant Strategy") and Goldman Sachs proprietary strategies referenced by the Relevant Strategy may be subject to pronounced risks of pricing volatility***

As a general matter, the risk of low liquidity or volatile pricing around the maturity date of a commodity futures contract is greater than in the case of other futures contracts because (among other factors) a number of market participants take physical delivery of the underlying commodities. Many commodities, like those in the energy and industrial metals sectors, have liquid futures contracts that expire

every month. Therefore, these futures contracts are rolled forward every month. Futures contracts based on certain other commodities, most notably agricultural and livestock products, tend to have only a few contract months each year that trade with substantial liquidity. Thus, these commodities, with related futures contracts that expire infrequently, roll forward less frequently than every month, and can have further pronounced pricing volatility during extended periods of low liquidity. It should be noted that due to the significant level of continuous consumption, limited reserves, and oil cartel controls, energy commodities are subject to rapid price increases in the event of perceived or actual shortages. These factors (when combined or in isolation) may affect the price of commodity futures contracts and, as a consequence, the performance of the Relevant Strategy.

(E) ***Exposure to commodity futures contracts through an investment in a Relevant Strategy that references commodity indices or strategies compared to "spot" prices***

- (1) Rolling - It is typical in commodity markets to take the price of the first-nearby commodity futures contract with respect to a commodity (that is, as of a given date, the commodity futures contract first to expire following such date) as a reference for the "spot" price of such commodity. Over time such "spot" price will vary for two reasons. Firstly, the price of the first-nearby commodity futures contract will vary over time due to market fluctuations. Secondly, when the commodity futures contract which is considered to be the first-nearby contract changes from contract expiration "X" to contract expiration "Y" (as contract expiration "X" is approaching expiry), there is a discrete change in the price of the "prevailing" first-nearby commodity futures contract. If contract expiration "Y" is trading at a premium to contract expiration "X" (referred to as a "contango" market, as described in further detail below), the discrete change will represent a "jump" in the "spot" price. If contract expiration "Y" is trading at a discount to contract expiration "X" (referred to as a "backwardated" market, as described in further detail below) the discrete change will represent a "drop" in price.
- (2) Effect of "jump" or "drop" - Since a "jump" or "drop" does not correspond to a change in price of any given commodity futures contract, these economics cannot be captured by a futures-linked investment such as the Relevant Strategy. Therefore, all other things being equal (in particular, assuming no change in the relative price of the various contract expirations with respect to the relevant commodity futures contract), in a "contango" market a long-only futures-linked investment may be expected to underperform the "spot" price (due to not capturing the "jump" in spot price) and in a "backwardated" market a long-only futures-linked investment may be expected to outperform the "spot" price (due to not capturing the "drop" in spot price).
- (3) "Backwardation" occurs when the price of a near-dated commodity futures contract is greater than the price of a longer-dated commodity futures contract, the market for such contracts is referred to as in "backwardation". "Contango" occurs when the price of the near-dated commodity futures contract is lower than the price of the longer-dated commodity futures contract, the market for such contracts is referred to as in "contango".

Accordingly, an investor in a financial instrument linked to the Relevant Strategy that references commodity indices or strategies as components may receive a lower payment upon redemption of such financial instrument than such investor would

have received if he or she had invested directly in commodities underlying such commodity indices or strategies or a financial instrument whose redemption or settlement amount was based upon the spot price of physical commodities or commodity futures contracts that were scheduled to expire on the maturity date of the financial instrument.

- (F) ***Commodities are subject to legal and regulatory regimes that may change in ways that could affect the level of the Relevant Strategy and/or affect the ability of the Strategy Sponsor, an issuer or other relevant entities to enter into or maintain hedging transactions***

Commodities are subject to legal and regulatory regimes in the United States and, in some cases, in other countries that may change in ways that could negatively affect the value of the Relevant Strategy and are expected to increase the cost of transacting derivatives. This could have an adverse impact on the level of the Relevant Strategy.

- (xiii) ***Specific risks in respect of the Underlying Index, the Govt Bond Index and the Commodity Index***

- (A) ***The value of the Relevant Strategy is reduced by the deduction of certain costs included in the calculation of the value of the Relevant Strategy and this will negatively impact the return on an investment in Securities linked to the Relevant Strategy***

The level of the Relevant Strategy is reduced by the deduction the basket rebalancing costs and the asset servicing costs. The basket rebalancing costs reflect the synthetic costs of entering into and/or unwinding any transactions relating to the Strategy Components following changes to their quantities. The asset servicing costs reflect the synthetic costs of maintaining positions in, and replicating the performance of, the Strategy Components. The value of the Relevant Strategy is reduced by the deduction of synthetic costs of establishing and unwinding transactions in respect of the Relevant Strategy. Such deduction has the effect of reducing the performance of the Relevant Strategy and consequently the return on an investment in Securities linked to the Relevant Strategy.

The Strategy Sponsor (or its affiliates) may benefit if the Relevant Strategy costs (and the component amounts thereof) embedded in the Underlying Index exceed the actual servicing costs and/or rebalancing costs that are incurred by the Strategy Sponsor (or its affiliates) in hedging transactions that may be entered into in respect of such the Strategy Components and/ or any underlying component thereof.

- (xiv) ***Specific risks in respect of the relating to Relevant Strategies which reference foreign exchange rates, being each of the Underlying Index, the Govt Bond Index and the EUA USD Strategy***

- (A) ***Changes in foreign currency exchange rates can be volatile and unpredictable***

Generally, rates of exchange between foreign currencies are volatile, and this volatility may continue in the future, in particular with regard to emerging market currencies. Fluctuations in currency exchange rates could adversely affect the performance of the Relevant Strategy. Some markets, especially emerging markets, carry significant risks for investors.

- (B) ***Government policy can adversely affect foreign currency exchange rates***

Foreign currency exchange rates can either float or be fixed by sovereign governments. From time to time, governments use a variety of techniques, such as intervention by a country's central bank or imposition of regulatory controls or taxes, to affect the exchange rate of their currencies. Governments may also issue a new currency to replace an existing currency or alter the exchange rate or exchange characteristics by devaluation or revaluation of a currency. Therefore, the level of a Strategy Component (and therefore any Relevant Strategy referencing such Strategy Component) which references foreign currency exchange rates could be significantly and unpredictably affected by governmental actions. Even in the absence of governmental action directly affecting foreign currency exchange rates, political, military or economic developments in a country issuing either currency of a relevant currency pair or elsewhere could lead to significant and sudden changes in the foreign currency exchange rate between currency pairs as well as the level of any Strategy Component referencing such foreign currency exchange rate taken into account for the purposes of the calculation of the level of the Relevant Strategy.

The government or central bank that issues either currency of a relevant currency pair will have no involvement in the offer and sale of the Relevant Strategy and no obligations to the Index Sponsor. Each such government or central bank may take actions that could adversely affect the value of the Relevant Strategy.

(C) ***Foreign exchange rates are influenced by unpredictable factors***

Generally, foreign exchange rates are a result of the supply of, and demand for, a given currency both domestically and internationally. Changes in exchange rates may result from the interactions of many factors including economic, financial, social and political conditions in Europe, the United States, any other jurisdiction whose currency is either currency of a relevant currency pair. These conditions include, for example, the overall growth and performance of the economies of the United States, the European Monetary Union (and the constituent nations thereof), any other jurisdiction whose currency is either currency of the relevant currency pair, the trade and current account balance between such countries, inflation, interest rate levels, the performance of global stock markets, the stability of the United States, European or other relevant jurisdictions' governments and banking systems, wars in which such nations or regions are directly or indirectly involved or that occur anywhere in the world, major natural disasters, and other foreseeable and unforeseeable events.

Certain relevant information relating to relevant jurisdictions (in respect of any currency pair) may not be as well known or as rapidly or thoroughly reported in the United States as compared to US developments. It is possible that there would be a lack of availability of important information that can affect the value of the one currency against another in respect of the Relevant Strategy, and special efforts may be required to obtain such information on a timely basis. See also the risk factor entitled "Government policy can adversely affect foreign currency exchange rates" above.

(D) ***Foreign exchange rate information may not be readily available***

There is no systematic reporting of last-sale information for foreign currencies. Reasonable current bid and offer information is available in certain brokers' offices, in bank foreign currency trading offices, and to others who wish to subscribe for this information, but this information will not necessarily reflect the currency exchange rates relevant for determining the level of the Relevant Strategy. The absence of last-sale information and the limited availability of quotations to

individual investors may make it difficult for many investors to obtain timely, accurate data about the state of the underlying foreign exchange markets.

(xv) *Specific risks in respect of the EUA EUR Strategy*

- (A) *Although the Relevant Strategy is based on the same commodity futures contract underlying the S&P Underlying Index, its value and returns may differ from those of the S&P Underlying Index*

The Relevant Strategy is based on the same commodity futures contract underlying the S&P Underlying Index and calculated using the same methodology as the S&P Underlying Index, but applies different rules for the "rolling" forward of the hypothetical positions in the relevant commodity futures contracts. An investor in a financial instrument linked to the Relevant Strategy should be aware that the risk factors applying to the S&P Underlying Index will also apply to such financial instrument, but that the return or amount payable under such financial instrument do not reflect the performance of the S&P Underlying Index. In particular, the different rules governing the roll period for the underlying Designated Contract may result in significant differences between the performance of the Relevant Strategy and the performance of the S&P Underlying Index. These different rules governing the roll period for the underlying Designated Contract are generally intended to enhance the performance of the Relevant Strategy over that of the S&P Underlying Index, but there can be no assurance that the different rules will have the intended effect and it is possible that they could actually result in the Relevant Strategy underperforming the S&P Underlying Index.

- (B) *Change in the composition or discontinuance of the S&P Underlying Index could affected the value of the Relevant Strategy*

The Relevant Strategy is based on the same commodity futures contracts underlying the S&P Underlying Index and calculated using the same methodology as the S&P Underlying Index, subject to certain modifications. The S&P Underlying Index is calculated and maintained by S&P Dow Jones Indices as sponsor, who is also responsible for the composition of the S&P Underlying Index. The sponsor of the S&P Underlying Index will have no involvement in the offer and sale of any financial instrument linked to the Relevant Strategy and will have no obligation to any purchaser of such instruments. The sponsor of the S&P Underlying Index may take any actions in respect of the S&P Underlying Index without regard to the interests of the Strategy Sponsor of the Relevant Strategy or any investors in financial instruments linked to Relevant Strategy, and any of these actions could adversely affect the value of the Relevant Strategy together with the market value of any financial instruments linked to the Relevant Strategy.

The sponsor of the S&P Underlying Index can substitute the commodity futures contracts underlying the S&P Underlying Index (for example, if a commodity futures contract referenced by the S&P Underlying Index were to be delisted, terminated or replaced by the relevant exchange on which such underlying commodity futures contract is traded) or make other changes to the methodology for calculating the S&P Underlying Index. The composition of the S&P Underlying Index may also change over time as additional commodity contracts satisfy the eligibility criteria or commodity contracts currently included in the S&P Underlying Index fail to satisfy such criteria. Such changes to the composition of the S&P Underlying Index (and therefore, of the Relevant Strategy) may affect the value of the Relevant Strategy as any newly added commodity contract may perform significantly worse or better than the commodity contract it replaces. The sponsor of the S&P Underlying Index may also alter, discontinue or suspend

calculation or dissemination of the S&P Underlying Index. In such circumstances, the Strategy Sponsor would have the discretion to make determinations with respect to the level of the Relevant Strategy including for the purposes of calculating the amount payable on any financial instrument linked to the Relevant Strategy.

(xvi) Specific risks in respect of each Money Market Index

(A) *The Money Market Index is not actively managed*

The value of the Money Market Index is a simple function of its previous index value and the relevant overnight interest rate option (the "Overnight Interest Rate Option"). There will be no active management of the Money Market Index so as to enhance returns beyond those embedded in the Money Market Index. Market participants often may adjust their investment promptly in view of market, political, financial or other factors. An actively managed product may potentially respond more directly and appropriately to immediate market, political, financial or other factors than a non-actively managed product.

(B) *Historical Levels of the Money Market Index may not be indicative of future performance*

Past performance of the Money Market Index is no guide as to future performance. The Money Market Index is based on historical performance of the Overnight Interest Rate Option. However, the actual performance of the Money Market Index in the future may bear little relation to the historical value of the Money Market Index.

(C) *The Index Sponsor Has Discretion to Make Certain Determinations Which Could Adversely Affect the Value of the Index*

The index sponsor has discretion to make determinations that could adversely affect the value of the Money Market Index. In making those determinations, the index sponsor will not be required to, and will not, take any person's interests into account or consider the effect its determinations will have on the value of the Money Market Index. The index sponsor will not be liable for their determinations. The index sponsor reserves the right to alter the methodology used to calculate the Money Market Index or the formula underlying the Money Market Index or to discontinue calculation and dissemination of such Money Market Index and an alteration may result in a decrease in the value of the Money Market Index. As such, many aspects of the Money Market Index may change in the future, including, without limitation, the formulae, methodology and third party data sources.

(D) *Overnight Interest Rates are not Guaranteed Rates and do not Reflect Government Deposit Guarantees*

The Overnight Interest Rate Option is not a rate applicable to guaranteed deposits and will not reflect any insurance or guarantee by any governmental agency in any jurisdiction (including without limitation the United States Federal Deposit Insurance Corporation, the Deposit Insurance Fund or any other governmental agency).

(E) *The index sponsor relies upon third party data sources which may be inaccessible and/or inaccurate*

The index sponsor relies upon third party external sources to obtain certain inputs necessary to compute a Money Market Index. The inability of the index sponsor to

source necessary data to carry out the Money Market Index formula may affect the value of the Money Market Index. In addition, the index sponsor makes no 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 value of the Money Market Index.

In particular, if the rate specified as the Overnight Interest Rate Option is not published (or if published, is determined by the index sponsor to be manifestly incorrect) for a period longer than three Overnight Interest Rate Business Days (as defined in the index rules of the Money Market Index), the index sponsor may substitute the Overnight Interest Rate Option with an alternative overnight interest rate option for the relevant currency. This substitution may have a negative impact on the performance of the Money Market Index and therefore on your Securities."

2. Inclusion of a new section

The Base Prospectus is amended and supplemented by inserting a new section immediately after the section entitled "*DESCRIPTION OF THE GOLDMAN SACHS GLOBAL DIVERSIFIED FUNDS VOLATILITY TARGET STRATEGY*" on pages 1139 to 1161:

"DESCRIPTION OF THE GOLDMAN SACHS GLOBAL DIVERSIFIED MULTI-ASSET 5% INDEX

The following description (this "**Description**") of each of:

- (i) *the Goldman Sachs Global Diversified Multi-Asset 5% Index (for purposes of this section only, the "**Index**")*;
- (ii) *the Goldman Sachs Diversified Multi-Asset Basket EUR ER Index (for purposes of this section only, the "**Underlying Index**")*;
- (iii) *the Goldman Sachs US and EUR Government Bond Basket USD ER Strategy (the "**Govt Bond Strategy**")*;
- (iv) *the US Government Bond Futures Rolling Strategy Index (the "**UST Futures Index**")*;
- (v) *the European Government Bond Futures Rolling Strategy Index (the "**Euro Bond Futures Strategy Index**" and, together with the UST Futures Index, the "**Bond Indices**")*;
- (vi) *the Goldman Sachs Commodity Focus Basket USD ER Index (for purposes of this section only, the "**Commodity Index**")*;
- (vii) *the Goldman Sachs EUA USD Strategy (the "**EUA USD Strategy**")*;
- (viii) *the Goldman Sachs Enhanced Strategy MOZE on S&P GSCI Carbon Emission Allowances EUA (EUR) Index (the "**EUA EUR Strategy**")*;
- (ix) *the EUR Goldman Sachs Overnight Money Market Index (the "**EUR Money Market Index**")*;
- (x) *the EUR STR Goldman Sachs Overnight Money Market Index (the "**EUR STR Money Market Index**")*;
and
- (xi) *the USD Goldman Sachs Overnight Money Market Index (the "**USD Money Market Index**" and, together with the EUR Money Market Index and the EUR STR Money Market Index, each a "**Money Market Index**" and together the "**Money Market Indices**")*,

*(the Index, the Underlying Index, the Govt Bond Strategy, the Bond Indices, the Commodity Index, the EUA USD Strategy, the EUA EUR Strategy and each Money Market Index, a "**Relevant Strategy**")*, is subject to, and qualified in its entirety by, the methodology in respect of such Relevant Strategy as published or made available by Goldman Sachs International (or any successor thereto) (the "**Strategy Sponsor**" in respect of such Relevant Strategy) from time to time.

Any such methodology may be amended or modified from time to time at the discretion of the Strategy Sponsor in accordance with the terms set out therein. Copies of such methodologies shall be made available by the Strategy Sponsor from www.goldmansachsindices.com (or any successor page thereto).

A prospective purchaser of Index Linked Securities should also carefully review the risk factors in relation to the Index and the other Relevant Strategies set out in the section of this Base Prospectus entitled "Risk Factors" before purchasing any Index Linked Securities.

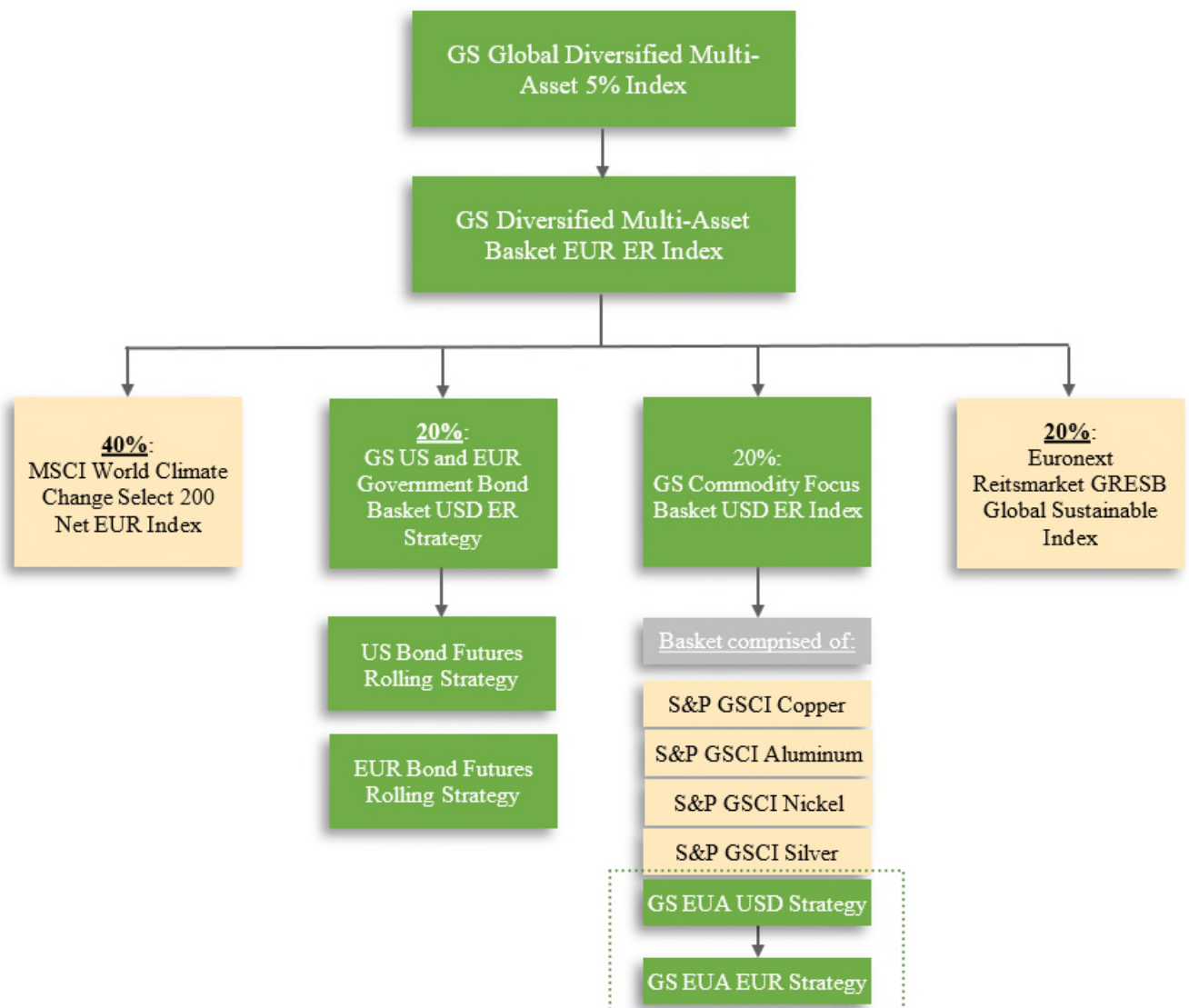
Each Relevant Strategy is a synthetic rules-based proprietary strategy created by the Strategy Sponsor. All determinations made pursuant to each Relevant Strategy are reserved for the Strategy Sponsor only, save that, in respect of:

- (1) each Relevant Strategy other than the Bond Indices, Goldman Sachs International; and
- (2) each Bond Index, Standard & Poor's,

(acting as calculation agent, the "**Strategy Calculation Agent**" in respect of the relevant Relevant Strategy) may determine the value of the relevant Relevant Strategy from time to time in accordance with the relevant methodology.

The Strategy Sponsor owns the copyright and all other rights to each Relevant Strategy.

The structure of the Index is set out in the diagram below:



1. Description of the Index

Capitalised terms defined in this Section 1 (*Description of the Index*) (including in Section 1.8 (*Definitions in respect of the Index*)) shall have the meaning given to them solely for the purposes of this Section 1 (*Description of the Index*) unless otherwise specified or cross-referred to.

1.1 Overview of the Index

The Goldman Sachs Global Diversified Multi-Asset 5% Index (*Bloomberg Code: GSISCC5E <Index>*) (referred to in this section as the "Index") seeks to provide a volatility-targeted exposure to the performance of the Underlying Index.

The volatility adjustment feature systematically adjusts the exposure of the Index to the performance of the Underlying Index by adjusting the weight of its exposure to the Underlying Index if a specified measure of the realised volatility of the Underlying Index would otherwise deviate from a target of pre-defined volatility target of 5.00 per cent. (the "**Volatility Target**") on any Strategy Rebalancing Day (the "**Volatility Adjustment Feature**"). The notional weight assigned to the Underlying Index is rebalanced on each Scheduled Trading Day (as defined in Section 2 (*Description of the Underlying Index*) below) for the Underlying Index and is subject to a cap of 100 per cent.

The Index is an "excess return" strategy and, therefore, the value of the Index shall not include the accrual of any amount or interest in relation to any money market rate in respect of any notional cash amount.

The Index is denominated in euro ("**EUR**").

The level of the Index is reduced by the deduction of synthetic costs of establishing and unwinding transactions in respect of the Underlying Index resulting from the application of the Volatility Adjustment Feature. The value of the Index is also reduced by the deduction of an annual fixed rate of one per cent. (the "**Strategy Deduction Rate**") which has the effect of reducing the performance of the Index.

1.2 Calculation of the Value of the Index

The value of the Index (the "**Strategy Value**") on the Strategy Inception Date was equal to 100.

The Strategy Value shall be calculated by the Strategy Calculation Agent on each Strategy Business Day following the Strategy Inception Date as an amount in the Strategy Currency (subject to a floor of zero) equal to: (a) the Strategy Value immediately prior to subtracting the Asset Rebalancing Cost in respect of such Strategy Business Day minus (b) the Asset Rebalancing Cost in respect of such Strategy Business Day ("**RCV_t^V**").

Expressed as a formula, the value of the Index on each Strategy Business Day following the Strategy Inception Date is as follows:

$$V_t^{Pre} - RC_t^V$$

The Strategy Value immediately before subtracting the Asset Rebalancing Cost in respect of each Strategy Business Day following the Strategy Inception Date ("**V_t^{Pre}**") shall be calculated by the Strategy Calculation Agent as an amount in the Strategy Currency equal to:

- (a) the value of the Index in respect of the Strategy Rebalancing Day immediately preceding such Strategy Business Day ("**V_{VRt}**"); multiplied by
- (b) an amount equal to:
 - (i) (1) the Asset Weight on the Strategy Rebalancing Day immediately preceding such Strategy Business Day ("**W_{VRt}^V**"); multiplied by
 - (2) the quotient of (i) the Asset Value of the Underlying Index in respect of such Strategy Business Day ("**A_t**"), as numerator; and (ii) the Asset Value of the Underlying Index on the Strategy Rebalancing Day immediately preceding such Strategy Business Day ("**A_{VRt}**"), as denominator,

minus

- (ii) (1) the actual number of days in the period commencing on (and including) the Strategy Rebalancing Day immediately preceding such Strategy Business Day and ending on (but excluding) such Strategy Business Day, divided by 360 (" $DCF_{VRT,t}$ "); multiplied by
- (2) the Strategy Deduction Rate.

provided that if the value of the Index in respect of such Strategy Business Day is (or is deemed to be) zero, the value of the Index in respect of each Strategy Business Day immediately following such Strategy Business Day shall also be zero.

Expressed as a formula, the Strategy Value immediately before subtracting the Asset Rebalancing Cost in respect of each Strategy Business Day following the Strategy Inception Date is as follows:

$$V_{VRT} \times \left[W_{VRT}^V \times \frac{A_t}{A_{VRT}} - DCF_{VRT,t} \times 1.00\% \right]$$

Subject to the occurrence of a disruption event (in respect of which see Section 10 (*Disruption Events, Adjustment Events and consequences*) below), each Strategy Value in respect of a Strategy Business Day will be published on the Strategy Publication Data Source and the Strategy Bloomberg Ticker rounded to two decimal places (with 0.005 being rounded upwards).

1.3 Calculation of the Asset Value in respect of the Underlying Index

In respect of any calendar day, the Asset Value in respect of the Underlying Index shall be as calculated in accordance with Section 2.3 (*Calculation of the Underlying Index Value*) set out in Section 2 (*Description of the Underlying Index*) below.

In respect of any calendar day, if the Asset Value of the Underlying Index is not available, then such Asset Value shall be the latest available Asset Value immediately preceding such calendar day.

1.4 Calculation of the Asset Weight

The Asset Weight in respect of a Strategy Rebalancing Day is an amount equal to the lower of:

- (a) 100 per cent.; and
- (b) the quotient of (A) 5.00 per cent., as numerator; and (B) the Reference Volatility in respect of such Strategy Rebalancing Day, as denominator.

Any such Asset Weight shall be rounded to three decimal places with 0.0005 being rounded upwards.

1.5 Calculation of the Reference Volatility and the Exponential Asset Realized Volatility

In respect of a Strategy Business Day, the Reference Volatility shall be equal to the Exponential Asset Realized Volatility in respect of the Asset Sampling Business Day falling on or immediately before such Strategy Rebalancing Day.

The Exponential Asset Realized Volatility in respect of the Strategy Inception Date was equal to 5.00 per cent.

The Exponential Asset Realized Volatility shall be calculated by the Strategy Calculation Agent on each Asset Sampling Business Day falling after the Strategy Inception Date as an amount equal to the greater of the Short Term Exponential Asset Realized Volatility and the Long Term Exponential Asset Realized Volatility, in each case, in respect of such Asset Sampling Business Day.

The Short Term Exponential Asset Realized Volatility shall be calculated by the Strategy Calculation Agent on each Asset Sampling Day falling after the Strategy Inception Date in accordance with the following formula:

$$\sqrt{0.94 \times AssetVol_{ST,t-1}^2 + (1 - 0.94) \times \frac{252}{5} \times \left[\ln \left(\frac{A_{t-d}}{A_{t-d-k}} \right) \right]^2}$$

The Long Term Basket Volatility shall be calculated by the Strategy Calculation Agent on each Asset Sampling Business Day falling after the Strategy Inception Date in accordance with the following formula:

$$\sqrt{0.97 \times AssetVol_{ST,t-1}^2 + (1 - 0.97) \times \frac{252}{5} \times \left[\ln \left(\frac{A_{t-d}}{A_{t-d-k}} \right) \right]^2}$$

Where:

$AssetVol_{ST,t-1}^2$ means, in respect of an Asset Sampling Business Day, the square of the Short Term Exponential Asset Realized Volatility in respect of the Asset Sampling Business Day immediately preceding such Strategy Business Day;

A_{t-d} means, in respect of an Asset Sampling Business Day, the Asset Value in respect of the Underlying Index in respect of the Asset Sampling Business Day that is two Asset Sampling Business Days immediately preceding such Asset Sampling Day;

A_{t-d-k} means, in respect of an Asset Sampling Business Day, the Asset Value in respect of the Underlying Index in respect of the Asset Sampling Business Day that is seven Asset Sampling Business Days immediately preceding such Asset Sampling Day;

\ln means the natural logarithm function; and

$AssetVol_{LT,t-1}^2$ means, in respect of an Asset Sampling Business Day, the square of the Long Term Exponential Asset Realized Volatility in respect of the Asset Sampling Business Day immediately preceding such Strategy Business Day.

1.6 Calculation of the Asset Rebalancing Cost in respect of the Index

The Asset Rebalancing Cost in respect of (a) the Strategy Inception Date and (b) each Strategy Business Day following the Strategy Inception Date that is not a Strategy Rebalancing Day, is equal to zero.

The Asset Rebalancing Cost in respect of each Strategy Rebalancing Day following the Strategy Inception Date shall be calculated by the Strategy Calculation Agent in accordance with the following formula:

$$0.0005 \times |w_t^v - \overline{w_t^v}| \times V_t^{Pre}$$

Where:

w_t^v means the Asset Weight in respect of such Strategy Rebalancing Day;

$\overline{w_t^v}$ means the Asset Actual Weight in respect of such Strategy Rebalancing Day immediately prior to the rebalancing process; and

V_t^{Pre} means the Strategy Value immediately before subtracting the Asset Rebalancing Cost in respect of such Strategy Business Day.

1.7 Calculation of the Asset Actual Weight in respect of the Index

The Asset Actual Weight in respect of each Strategy Business Day shall be calculated by the Strategy Calculation Agent as an amount equal to:

- (a) the Asset Weight in respect of the Strategy Rebalancing Day immediately preceding such Strategy Business Day; multiplied by
- (b) the quotient of (A) the Asset Value in respect of such Strategy Business Day, as numerator; and (B) the Asset Value in respect of the Strategy Rebalancing Day immediately preceding such Strategy Business Day, as denominator; multiplied by
- (c) the quotient of (A) the Strategy Value in respect of the Strategy Rebalancing Day immediately preceding such Strategy Business Day, as numerator; and (B) the Strategy Value in respect of such Strategy Business Day immediately before subtracting the Asset Rebalancing Cost in respect of such Strategy Business Day.

1.8 Definitions in respect of the Index

"**Asset Sampling Business Day**" means the Strategy Inception Date and thereafter each calendar day which is a "Strategy Business Day" (as defined in Section 2 (*Description of the Underlying Index*) below);

"**Asset Trading Day**" means each "Strategy Trading Day" (as defined in Section 2 (*Description of the Underlying Index*) below);

"**Strategy Bloomberg Ticker**" means *GSISCC5E* <Index>;

"**Strategy Business Day**" means the Strategy Inception Date and thereafter each Asset Sampling Business Day;

"**Strategy Currency**" means EUR;

"**Strategy Inception Date**" means 20 January 2022;

"**Strategy Publication Data Source**" means <https://goldmansachsindices.com> (or any successor page thereto);

"**Strategy Rebalancing Day**" means the Strategy Inception Date and thereafter each Asset Trading Day; and

"**Strategy Trading Day**" means the Strategy Inception Date and thereafter each Asset Trading Day.

1.9 Disruption Events, Adjustment Events, Change in Methodology and Corrections

In respect of the Index, please see Section 10.1 (*Disruption Events - In respect of each of the Index, the Underlying Index and the Govt Bond Strategy only*), Section 11 (*Corrections*) and Section 12 (*Change in Methodology*).

2. Description of the Underlying Index

Capitalised terms defined in this Section 2 (*Description of the Underlying Index*) (including in Section 2.11 (*Definitions in respect of the Underlying Index*)) shall have the meaning given to them solely for the purposes of this Section 2 (*Description of the Underlying Index*) unless otherwise specified or cross-referred to.

2.1 Overview of the Underlying Index

The Goldman Sachs Diversified Multi-Asset Basket EUR ER Index (*Bloomberg Code: GSISDMAB* <Index>) (referred to herein as the Underlying Index) seeks to provide synthetic exposure to the performance of an unequally weighted basket (the "**Basket**") of four underlying indices (the "**Basket Indices**" and each a "**Basket Index**") and which periodically (on a monthly basis) rebalances to assign a notional weight to each Basket Index by reference to certain fixed weights (the Asset Weights, as set out in Section 2.2 (*Overview of Underlying Index Basket Indices*) below).

The Basket Indices in respect of the Underlying Index are set out in Section 2.2 (*Overview of Underlying Index Basket Indices*) below.

The Underlying Index is an "excess return" strategy and, therefore, the value of the Underlying Index shall not include the accrual of any amount or interest in relation to any money market rate in respect of any notional cash amount.

The Underlying Index is denominated in euro ("**EUR**") and has, in respect of each Basket Index which is not denominated in EUR, an internal simulated currency hedge feature that seeks to offset a substantial portion of the positive or negative effects of currency exchange rate fluctuations on the level of such Basket Index.

The level of the Underlying Index is reduced by the deduction the basket rebalancing costs and the asset servicing costs. The basket rebalancing costs reflect the synthetic costs of entering into and/or unwinding any transactions relating to the Basket Indices following changes to their Asset Quantities. The asset servicing costs reflect the synthetic costs of maintaining positions in, and replicating the performance of, the Basket Indices. Overall, the deduction of such synthetic costs may have the effect of reducing the performance of the Underlying Strategy.

2.2 Overview of the Underlying Index Basket Indices

i	Basket Index	Bloomberg Page	Currency	Return Type	Asset Weight
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1	MSCI World Climate Change Select 200 Net EUR Index*	<i>MXWOCCNE</i> <Index>	EUR	Total Return	40%
2	Goldman Sachs US and EUR Government Bond Basket USD ER Strategy**	<i>GSISFIBU</i> <Index>	USD	Excess Return	20%
3	GS Commodity Focus Basket USD ER Index***	<i>GSISCFBU</i> <Index>	USD	Excess Return	20%
4	Euronext Reitsmarket GRESB Global Sustainable Index****	<i>ERGSN</i> <Index>	EUR	Total Return	20%

* Further details are available from <https://www.msci.com>

** As described in Section 3 (*Description of the Govt Bond Strategy*) below.

*** As described in Section 6 (*Description of the Commodity Index*) below.

**** Further details are available from <https://live.euronext.com>

2.3 Calculation of the Underlying Index Value

The value of the Underlying Index (the "**Underlying Index Value**") on the Strategy Inception Date was equal to 100.

The Underlying Index Value shall be calculated by the Strategy Calculation Agent on each Strategy Business Day following the Strategy Inception Date as an amount in the Strategy Currency. The Underlying Index Value is calculated in t (subject to a floor of zero) equal to:

- (a) the Underlying Index Value in respect of the Strategy Rebalancing Day immediately preceding such Strategy Business Day (" V_{VRt} "); multiplied by
- (b) the quotient of:
 - (A) the Basket Value in respect of such Strategy Business Day (" B_t "), as numerator; and
 - (B) the Basket Value in respect of the Strategy Rebalancing Day immediately preceding such Strategy Business Day (or, if none, 100) (" V_{VRt} "), as denominator,

provided that if the Underlying Index Value in respect of such Strategy Business Day is (or is deemed to be) zero, the Underlying Index Value in respect of each Strategy Business Day immediately following such Strategy Business Day shall also be zero.

Expressed as a formula, the Underlying Index Value on each Strategy Business Day following the Strategy Inception Date is as follows:

$$V_{VRt} \times \left(\frac{B_t}{V_{VRt}} \right)$$

Subject to the occurrence of a disruption event (in respect of which see Section 10 (*Disruption Events, Adjustment Events and Consequences*) below), each such value in respect of each Strategy Business Day will be published on the Strategy Publication Data Source and the Strategy Bloomberg Ticker rounded to two decimal places (with 0.005 being rounded upwards).

2.4 Calculation of the Basket Value

The Basket Value on the Strategy Inception Date was equal to 100.

The Basket Value shall be calculated by the Strategy Calculation Agent on each Strategy Business Day following the Strategy Inception Date as an amount (subject to a floor of zero) equal to:

- (a) the summation, in respect of each Basket Index, of:
 - (A) the Asset Quantity; multiplied by

(B) the Asset Value,

in each case, in respect of such Basket Index and such Strategy Business Day,

plus

(b) the Cash Asset Quantity in respect of such Strategy Business Day,

provided that if the Basket Value in respect of such Strategy Business Day is (or is deemed to be) zero, the Basket Value in respect of each Strategy Business Day immediately following such Strategy Business Day shall be zero.

2.5 Calculation of the Asset Quantity in respect of each Basket Index

The Asset Quantity in respect of a Basket Index and each Strategy Business Day falling after the Strategy Inception Date that is not a Basket Rebalancing Day shall be equal to the Asset Quantity in respect of such Basket Index in respect of the Basket Rebalancing Day immediately preceding such Strategy Business Day.

The Asset Quantity in respect of a Basket Index and each Basket Rebalancing Day shall be calculated by the Strategy Calculation Agent as the quotient of:

- (a) the Asset Weight in respect of such Basket Index multiplied by the Basket Value, in each case in respect of the Basket Observation Day relating to such Basket Rebalancing Day (or, in respect of the Basket Rebalancing Day falling on the Strategy Inception Date, 100), as numerator; and
- (b) the Asset Value in respect of the Basket Observation Day relating to such Basket Rebalancing Day, as denominator.

Unless the Strategy Calculation Agent determines otherwise, in the event that the value of any component which is utilised for the calculation of an Asset Quantity is subsequently corrected, the Strategy Calculation Agent will not correct the Asset Quantity and will instead use the Asset Quantity as calculated before such correction.

2.6 Calculation of the Asset Value in respect of each Basket Index

The Asset Value of each Basket Index on the Asset Inception Date was equal to 100.

The calculation of the Asset Value of each Basket Index depends on the Currency and Return Type in respect of such Basket Index, as set out in Section 2.2 (*Overview of Underlying Index Basket Indices*) above.

The Asset Value of each Basket Index in respect of which the Currency is EUR and the Return Type is "Total Return" (being Basket Indices $i=1$ and $i=4$) on any given Asset Business Day following the Asset Inception Date shall be calculated by the Strategy Calculation Agent as an amount equal to:

- (a) the Asset Value in respect of such Basket Index in respect of the Asset Rebalancing Day in respect of such Basket Index immediately preceding such Asset Business Day (" A_{ARt} "); multiplied by
- (b) an amount equal to:
 - (i) one (1); minus
 - (ii) the quotient of (I) the Reference Level of the EUR STR Money Market Index on such Asset Business Day (" MM_t "), as numerator; and (II) the Reference Level of the EUR STR Money Market Index on the Asset Rebalancing Day immediately preceding such Asset Business Day (" MM_{ARt} "), as denominator; plus
 - (iii) the quotient of (i) the Reference Level of such Basket Index on such Asset Business Day (" L_t ") as numerator; and (ii) the Reference Level of such Basket Index on the Asset Rebalancing Day immediately preceding such Asset Business Day (" L_{ARt} "), as denominator.

Expressed as a formula, the Asset Value of each Basket Index in respect of which the Currency is EUR and the Return Type is "Total Return" on any given Asset Business Day following the Asset Inception Date is as follows:

$$A_{ARt} \times \left(1 - \frac{MM_t}{MM_{ARt}} + \frac{L_t}{L_{ARt}} \right)$$

The Asset Value of each Basket Index in respect of which the Currency is USD and the Return Type is "Excess Return" (being Basket Indices i=2 and i=3) on any given Asset Business Day following the Asset Inception Date shall be calculated by the Strategy Calculation Agent as an amount equal to:

- (a) the Asset Value in respect of such Basket Index in respect of the Asset Rebalancing Day in respect of such Basket Index immediately preceding such Asset Business Day (" A_{ARt} "); multiplied by
- (b) an amount equal to:
 - (i) one (1); minus
 - (ii) the quotient of:
 - (I) the applicable Currency Exchange Rate to convert one unit of USD into EUR in respect of such Asset Business Day (" FX_t "), as numerator; and
 - (II) the applicable Currency Exchange Rate to convert one unit of USD into EUR in respect of the Asset Rebalancing Day immediately preceding such Asset Business Day (" FX_{ARt} "), as denominator; plus
 - (iii) the quotient of:
 - (I) the Reference Level of such Basket Index in respect of such Asset Business Day (" L_t "), multiplied by the applicable Currency Exchange Rate to convert one unit of USD into EUR in respect of such Asset Business Day (" FX_t "), as numerator; and
 - (II) the Reference Level of such Basket Index in respect of the Asset Rebalancing Day immediately preceding such Asset Business Day (" L_{ARt} "), multiplied by the applicable Currency Exchange Rate to convert one unit of USD into EUR in respect of the Asset Rebalancing Day immediately preceding such Asset Business Day (" FX_{ARt} "), as denominator.

Expressed as a formula, the Asset Value of each Basket Index in respect of which the Currency is USD and the Return Type is "Excess Return" on any given Asset Business Day following the Asset Inception Date is as follows:

$$A_{ARt} \times \left(1 - \frac{FX_t}{FX_{ARt}} + \frac{FX_t \times L_t}{FX_{ARt} \times L_{ARt}} \right)$$

2.7 Calculation of the Cash Asset Quantity

The Cash Asset Quantity on the Basket Inception Date was equal to the Initial Cash Asset Quantity.

The Cash Asset Quantity on each Strategy Business Day following the Basket Inception Date shall be calculated by the Strategy Calculation Agent as an amount equal to:

- (a) where such Strategy Business Day does not fall on a Basket Rebalancing Day, an amount equal to:
 - (A) the Cash Asset Quantity in respect of the Basket Rebalancing Day immediately preceding such Strategy Business Day (or, if none, the Initial Cash Asset Quantity); minus
 - (B) the Asset Servicing Cost in respect of such Strategy Business Day; and
- (b) where such Strategy Business Day falls on a Basket Rebalancing Day, an amount calculated by the Strategy Calculation Agent in accordance with the following formula:

$$q_{c,BRt} + 1 \times \left\{ \sum_{i=1}^n [(q_{i,BRt} - q_{i,t}) \times A_{i,t}] - RC_t^B - SC_t \right\}$$

Where:

$q_{c,BRt}$ means the Cash Asset Quantity in respect of the Basket Rebalancing Day immediately preceding such Strategy Business Day (or, if none, the Initial Cash Asset Quantity);

i means Basket Index "i";

n means a number equal to the total number of Basket Indices;

$q_{i,BRt}$ means the Asset Quantity in respect of the relevant Basket Index in respect of the Basket Rebalancing Day immediately preceding such Strategy Business Day (or, if none, in respect of the Strategy Inception Date);

$q_{i,t}$ means the Asset Quantity in respect of the relevant Basket Index and such Strategy Business Day;

$A_{i,t}$ means the Asset Value in respect of the relevant Basket Index and such Strategy Business Day;

RC_t^B means the Basket Rebalancing Cost in respect of such Strategy Business Day; and

SC_t means the Asset Servicing Cost in respect of such Strategy Business Day.

2.8 Calculation of the Initial Cash Asset Quantity

The Initial Cash Asset Quantity shall be calculated by the Strategy Calculation Agent as an amount equal to the quotient of:

- (A) an amount equal to:
- (i) 100; minus
 - (ii) the summation, in respect of each Basket Index, of:
 - (I) the Asset Quantity; multiplied by
 - (II) the Asset Value,
- in each case, in respect of the Strategy Inception Date,
(as numerator); and
- (B) one, as denominator.

Expressed as a formula, the Initial Cash Asset Quantity is calculated in accordance with the following formula:

$$\frac{100 - \sum_{i=1}^n q_{i,BID} \times A_{i,BID}}{1}$$

Where:

$q_{c,BRt}$ means the Asset Quantity in respect of Basket Index "i" in respect of the Strategy Inception Date;

i means Basket Index "i";

n means a number equal to the total number of Basket Indices; and

$A_{i,t}$ means the Asset Value in respect of Basket Index "i" in respect of the Strategy Inception Date.

2.9 Calculation of the Basket Rebalancing Cost

The Basket Rebalancing Cost in respect of (a) the Strategy Inception Date and (b) each Strategy Business Day following the Strategy Inception Date that is not a Basket Rebalancing Day, is equal to zero.

The Basket Rebalancing Cost in respect of each Basket Rebalancing Day following the Strategy Inception Date shall be calculated by the Strategy Calculation Agent in accordance with the following formula:

$$\sum_{i=1}^4 (TC_{i,t}^A \times |q_{i,BRt} - q_{i,t}|)$$

Where:

i means Basket Index "i";

$TC_{i,t}^A$ means the Asset Transaction Cost Rate in respect of the relevant Basket Index;

$A_{i,t}$ means the Asset Value in respect of the relevant Basket Index and such Strategy Business Day;

$q_{i,BRt}$ means the Asset Quantity in respect of the relevant Basket Index in respect of the Basket Rebalancing Day immediately preceding such Basket Rebalancing Day (or, if none, in respect of the Strategy Inception Date); and

$q_{i,t}$ means the Asset Quantity in respect of the relevant Basket Index and such Basket Rebalancing Day.

2.10 Calculation of the Asset Servicing Cost

The Asset Servicing Cost in respect of the Strategy Inception Date was equal to zero.

The Asset Servicing Cost in respect of each Strategy Business Day following the Strategy Inception Date shall be calculated by the Strategy Calculation Agent in accordance with the following formula:

$$\sum_{i=1}^n \left[q_{i,BRt} \times \sum_{s=BRt}^{t-1} (A_{i,s} \times DCF_{s,s+1} \times CC_{i,s}) \right]$$

Where:

i means Basket Index "i";

n means a number equal to the total number of Basket Indices;

$q_{i,BRt}$ means the Asset Quantity in respect of the relevant Basket Index and the Basket Rebalancing Day immediately preceding such Strategy Business Day;

t means the relevant Strategy Business Day;

s means each relevant Strategy Business Day falling in the period commencing on (and including) the Basket Rebalancing Day immediately preceding such Strategy Business Day to (and including) the Strategy Business Day immediately preceding such Strategy Business Day;

$A_{i,s}$ means the Asset Value in respect of the relevant Basket Index and such Strategy Business Day;

$DCF_{s,s+1}$ means the actual number of days in the period commencing on (and including) such Strategy Business Day and ending on (but excluding) the Strategy Business Day immediately following such Strategy Business Day, divided by 360; and

$CC_{i,s}$ means the Asset Servicing Cost Rate in respect of the relevant Basket Index.

2.11 Definitions in respect of the Underlying Index

"**Additional Market Disruption Event**" means, in respect of Basket Index c=3, if a hedging disruption would otherwise occur due solely to a restriction in trading in the relevant underlying futures contract of such Basket Index due to movements in price exceeding certain permitted limits, such restriction shall be deemed not to be a hedging disruption for the purposes of such Basket Index.

"**Asset Business Day**" means, in respect of each Basket Index, each day from and including the Asset Inception Date which is a business day according to the holiday calendar of such Basket Index;

"**Asset Inception Date**" means, in respect of each Basket Index, 11 January 2022;

"**Asset Rebalancing Day**" means, in respect of a Basket Index, each Asset Business Day from and including the Asset Inception Date on which both the Asset Value and the Reference Level of such Basket Index are strictly greater than zero.

"Asset Servicing Cost Rate" means, in respect of a Basket Index and a Strategy Business Day

- (a) if the Asset Quantity in respect of such Basket Index on such Strategy Business Day (or, if such Strategy Business Day is not Basket Rebalancing Day, on the Basket Rebalancing Day immediately preceding such Strategy Business Day) was greater than or equal to zero, the Long Asset Servicing Cost Rate in respect of such Basket Index; or
- (b) otherwise, the Short Asset Servicing Cost Rate in respect of such Basket Index

"Asset Sponsor" means, in respect of:

- (a) Basket Index i=1, MSCI Inc.;
- (b) each of Basket Index i=2 and i=3, Goldman Sachs International; and
- (c) Basket Index i=4, Euronext N.V.,

or, in each case, any successor thereto.

"Asset Trading Day" means, in respect of:

- (a) Basket Index i=1, each day on which each of the following exchanges is open for trading during its regular trading session (as determined by the Strategy Calculation Agent): New York Stock Exchange, London Stock Exchange, Tokyo Stock Exchange, Frankfurt Stock Exchange, Hong Kong Stock Exchange and Paris Stock Exchange;
- (b) Basket Index i=2, each "Strategy Trading Day" as defined in (as defined in Section 3 (*Description of the Govt Bond Strategy*) below);
- (c) Basket Index i=3, each "Strategy Trading Day" as defined in (as defined in Section 6 (*Description of the Commodity Index*) below); and
- (d) Basket Index i=4, each day on which each of the following exchanges is open for trading during its regular trading session (as determined by the Strategy Calculation Agent): Singapore Stock Exchange, Tokyo Stock Exchange, New York Stock Exchange, Toronto Stock Exchange, London Stock Exchange, Brussels Stock Exchange, Mercado Continuo (SIBE), Hong Kong Stock Exchange and Paris Stock Exchange;

"Asset Transaction Cost Rate" means, in respect of each Basket Index, 0.0005;

"Basket Observation Day" means, with respect to:

- (a) the Strategy Inception Date, the Strategy Inception Date; and
- (b) a Basket Rebalancing Day which is not the Strategy Inception Date, the calendar day falling two Strategy Business Days before such day;

"Basket Rebalancing Day" means the Strategy Inception Date and thereafter the 11th calendar day of each calendar month, or the immediately following Basket Trading Day if such day is not a Basket Trading Day. If on any Strategy Business Day, the Basket Value (calculated immediately before subtracting the Basket Rebalancing Cost for such day) or the Asset Value of a Basket Index is equal to or less than zero, no further Basket Rebalancing Day will occur on or after such day.

"Basket Trading Day" means each Strategy Business Day which is an Asset Trading Day for each Basket Index.

"Currency Exchange Rate" means, in respect of an Asset Business Day, the 4 p.m. London closing spot mid rate for converting one unit of USD into EUR as published by WM Performance Services or any successor company for such day.

The days on which Currency Exchange Rates are usually fixed and published, as determined by the Strategy Calculation Agent, by WM Performance Services or any successor company are referred to herein as **"Fixing Days"**. If any calendar day is not a Fixing Day, the Strategy Calculation Agent will use the level of the relevant Currency Exchange Rate published for the applicable Fixing Day immediately preceding such calendar day.

If any calendar day is a Fixing Day but the applicable Currency Exchange Rate is not available on such day at the applicable time indicated above, the Strategy Calculation Agent shall determine the Currency Exchange Rate in respect of such Fixing Day in a commercially reasonable manner;

"**Long Asset Servicing Cost Rate**" means in respect of:

- (a) each of Basket Index $i=1$ and $i=4$, 0.0075; and
- (b) each of Basket Index $i=2$ and $i=3$, zero.

"**Reference Level**" means, in respect of:

- (a) any Basket Index, on any given calendar day, the closing level of the relevant Basket Index as determined by the relevant Asset Sponsor in respect of such calendar day; and
- (b) the EUR STR Money Market Index:
 - (A) on any MM Index Business Day, its MM Index Value as calculated by the Strategy Sponsor in respect of the EUR STR Money Market Index and such MM Index Business Day; and
 - (B) on any day other than a MM Index Business Day, its MM Index Value as calculated by the Strategy Sponsor in respect of the EUR STR Money Market Index and the immediately preceding MM Index Business Day,

for the purposes of this sub-paragraph (b), in each case as such term is defined in Section 9 (*Description of the Money Market Indices*).

"**Short Asset Servicing Cost Rate**" means, in respect of each Basket Index, zero;

"**Strategy Business Day**" means each weekday (being Monday to Friday of each calendar week) starting from and including the Strategy Inception Date;

"**Strategy Currency**" means EUR;

"**Strategy Inception Date**" means 11 January 2022;

"**Strategy Publication Data Source**" means <http://marquee.gs.com> (or any successor page thereto);

"**Strategy Rebalancing Day**" means the Strategy Inception Date and thereafter each Strategy Business Day for which the Basket Value is strictly greater than zero;

"**Strategy Trading Day**" means each Basket Trading Day from and including the Strategy Inception Date; and

"**USD**" means United States Dollars.

2.12 Disruption Events, Adjustment Events, Change in Methodology and Corrections

In respect of the Underlying Index, please see Section 10.1 (*Disruption Events - In respect of each of the Index, the Underlying Index and the Govt Bond Strategy only*), Section 11 (*Corrections*) and Section 12 (*Change in Methodology*).

3. Description of the Govt Bond Strategy

Capitalised terms defined in this Section 3 (*Description of the Govt Bond Strategy*) (including in the Section 3.11 (*Definitions in respect of the Govt Bond Strategy*)) shall have the meaning given to them solely for the purposes of this Section 3 (*Description of the Govt Bond Strategy*) unless otherwise specified or cross-referred to.

3.1 Overview of the Govt Bond Strategy

The Goldman Sachs US and EUR Government Bond Basket USD ER Strategy (*Bloomberg Code: GSISFIBU <Index>*) (referred to herein as the Govt Bond Strategy) seeks to provide synthetic exposure to the performance of an equally weighted basket (the "**Basket**") of two underlying indices (the "**Basket Indices**" and each a "**Basket Index**") and which periodically (on a monthly basis) rebalances to assign a notional weighting to each Basket

Index by reference to certain fixed weights (the Assets Weights, as set out in Section 3.2 (*Overview of the Govt Bond Strategy Basket Indices*) below).

The Basket Indices in respect of the Govt Bond Strategy are set out in the Section 3.2 (*Overview of the Govt Bond Strategy Basket Indices*) below.

The Govt Bond Strategy is an "excess return" strategy and, therefore, the value of the Govt Bond Strategy shall not include the accrual of any amount or interest in relation to any money market rate in respect of any notional cash amount.

The Govt Bond Strategy is denominated in United States Dollars ("USD") and has, in respect of each Basket Index which is not denominated in USD, an internal simulated currency hedge feature that seeks to offset a substantial portion of the positive or negative effects of currency exchange rate fluctuations on the value of such Basket Index.

The value of the Govt Bond Strategy is reduced by the deduction of (i) synthetic costs of entering into and/or unwinding any transaction relating to the Basket Indices following a Rebalancing and (ii) synthetic costs of maintaining positions in, and replicating the performance of, the Basket Indices. Overall, the deduction of such synthetic costs may have the effect of reducing the performance of the Govt Bond Strategy.

3.2 Overview of the Govt Bond Strategy Basket Indices

i	Basket Index	Bloomberg Page	Currency	Return Type	Asset Weight
1	US Government Bond Futures Rolling Strategy Index*	FRSIUSB <Index>	USD	Total Return	50%
2	European Government Bond Futures Rolling Strategy Index**	FRSIEUB <Index>	EUR	Total Return	50%

* As described in Section 4 (*Description of the US Government Bond Futures Rolling Strategy Index*) below.

** As described in Section 5 (*Description of the European Government Bond Futures Rolling Strategy Index*) below.

3.3 Calculation of the Value of the Govt Bond Strategy

The value of the Govt Bond Strategy (the "**Govt Bond Strategy Value**") on the Strategy Inception Date was equal to 100.

The Govt Bond Strategy Value shall be calculated by the Strategy Calculation Agent on each Strategy Business Day following the Strategy Inception Date as an amount in the Strategy Currency (subject to a floor of zero) calculated in the same manner as the Underlying Index Value, as set out in Section 2.2 (*Calculation of the Underlying Index Value*) of Section 2 (*Description of the Underlying Index*).

3.4 Calculation of the Basket Value

The Basket Value on the Strategy Inception Date was equal to 100.

The Basket Value shall be calculated by the Strategy Calculation Agent on each Strategy Business Day following the Strategy Inception Date as an amount (subject to a floor of zero) calculated in the same manner as the Basket Value for the purposes of the Underlying Index, as set out in Section 2.4 (*Calculation of the Basket Value*) of Section 2 (*Description of the Underlying Index*).

3.5 Calculation of the Asset Quantity

The Asset Quantity in respect of a Basket Index and a Strategy Business Day shall be determined by the Strategy Calculation Agent as set out in Section 2.5 (*Calculation of the Asset Quantity in respect of each Basket Index*) of Section 2 (*Description of the Underlying Index*).

Unless the Strategy Calculation Agent determines otherwise, in the event that the value of any component which is utilised for the calculation of an Asset Quantity is subsequently corrected, the Strategy Calculation Agent will not correct the Asset Quantity and will instead use the Asset Quantity as calculated before such correction.

3.6 Calculation of the Asset Value

The Asset Value of each Basket Index on the Asset Inception Date was equal to 100.

The Asset Value of each Basket Index in respect of which the Currency is USD and the Return Type is "Total Return" (being Basket Index i=1) on any given Asset Business Day following the Asset Inception Date shall be calculated by the Strategy Calculation Agent as an amount equal to:

- (a) the Asset Value in respect of such Basket Index in respect of the Asset Rebalancing Day in respect of such Basket Index immediately preceding such Asset Business Day (" A_{ART} "); multiplied by
- (b) an amount equal to:
 - (i) one (1); minus
 - (ii) the quotient of (I) the Reference Level of the USD Money Market on such Asset Business Day (" MM_t "), as numerator; and (II) the Reference Level of the USD Money Market Index on the Asset Rebalancing Day immediately preceding such Asset Business Day (" MM_{ART} "), as denominator; plus
 - (iii) the quotient of (i) the Reference Level of such Basket Index on such Asset Business Day (" L_t ") as numerator; and (ii) the Reference Level of such Basket Index on the Asset Rebalancing Day immediately preceding such Asset Business Day (" L_{ART} "), as denominator.

Expressed as a formula, the Asset Value of the Basket Index in respect of which the Currency is USD and the Return Type is "Total Return" on any given Asset Business Day following the Asset Inception Date is as follows:

$$A_{ART} \times \left(1 - \frac{MM_t}{MM_{ART}} + \frac{L_t}{L_{ART}} \right)$$

The Asset Value of each Basket Index in respect of which the Currency is EUR (being Basket Index i=2) on any given Asset Business Day following the Asset Inception Date shall be calculated by the Strategy Calculation Agent as an amount equal to:

- (a) the Asset Value in respect of such Basket Index in respect of the Asset Rebalancing Day in respect of such Basket Index immediately preceding such Asset Business Day (" A_{ART} "); multiplied by
- (b) an amount equal to:
 - (i) one (1); minus
 - (ii) the quotient of:
 - (I) an amount equal to the Reference Level of the EUR Money Market Index on such Asset Business Day (" MM_t "), multiplied by the applicable Currency Exchange Rate to convert one unit of EUR into USD on such Asset Business Day (" FX_t "), as numerator; and
 - (II) an amount equal to the Reference Level of the EUR Money Market Index on the Asset Rebalancing Day immediately preceding such Asset Business Day (" MM_{ART} "), multiplied by the applicable Currency Exchange Rate to convert one unit of EUR into USD on the Asset Rebalancing Day immediately preceding such Asset Business Day (" FX_{ART} "),

plus
 - (iii) the quotient of:
 - (I) the Reference Level of such Basket Index in respect of such Asset Business Day (" L_t "), multiplied by the applicable Currency Exchange Rate to convert one unit of EUR into USD in respect of such Asset Business Day (" FX_t "), as numerator; and
 - (II) the Reference Level of such Basket Index in respect of the Asset Rebalancing Day immediately preceding such Asset Business Day (" L_{ART} "), multiplied by the applicable

Currency Exchange Rate to convert one unit of EUR into USD in respect of the Asset Rebalancing Day immediately preceding such Asset Business Day (" FX_{ART} "), as denominator.

Expressed as a formula, the Asset Value of each Basket Index in respect of which the Currency is EUR and the Return Type is "Total Return" on any given Asset Business Day following the Asset Inception Date is as follows:

$$A_{ART} \times \left(1 - \frac{MM_t \times FX_t}{MM_{ART} \times FX_{ART}} + \frac{FX_t \times L_t}{FX_{ART} \times L_{ART}} \right)$$

In respect of an Asset and a day which is not an Asset Business Day the Asset Value shall be the Asset Value of such Asset as of the immediately preceding Asset Business Day.

3.7 Calculation of the Cash Asset Quantity

The Cash Asset Quantity on the Basket Inception Date was equal to the Initial Cash Asset Quantity.

The Cash Asset Quantity in respect of a Basket Index and each Strategy Business Day following the Basket Inception Date shall be calculated by the Strategy Calculation Agent as set out in Section 2.7 (*Calculation of the Cash Asset Quantity*) of Section 2 (*Description of the Underlying Index*).

3.8 Calculation of the Initial Cash Asset Quantity

The Initial Cash Asset Quantity shall be determined by the Strategy Calculation Agent as set out in Section 2.8 (*Calculation of the Initial Cash Asset Quantity*) of Section 2 (*Description of the Underlying Index*).

3.9 Calculation of the Basket Rebalancing Cost

The Basket Rebalancing Cost in respect of (a) the Strategy Inception Date and (b) each Strategy Business Day following the Strategy Inception Date that is not a Basket Rebalancing Day, is equal to zero.

The Basket Rebalancing Cost in respect of each Basket Rebalancing Day following the Strategy Inception Date shall be calculated by the Strategy Calculation Agent as set out in Section 2.9 (*Calculation of the Basket Rebalancing Cost*) of Section 2 (*Description of the Underlying Index*).

3.10 Calculation of the Asset Servicing Cost

The Asset Servicing Cost in respect of the Strategy Inception Date was equal to zero.

The Asset Servicing Cost in respect of each Strategy Business Day following the Strategy Inception Date shall be calculated by the Strategy Calculation Agent as set out in Section 2.10 (*Calculation of the Asset Servicing Cost*) of Section 2 (*Description of the Underlying Index*).

3.11 Definitions in respect of the Govt Bond Strategy

"**Asset Business Day**" means, in respect of each Basket Index, each day from and including the Asset Inception Date which is a business day according to the holiday calendar of such Basket Index;

"**Asset Inception Date**" means, in respect of each Basket Index, 10 January 2022;

"**Asset Rebalancing Day**" means, in respect of a Basket Index, each Asset Business Day from and including the Asset Inception Date on which both the Asset Value and the Reference Level of such Basket Index are strictly greater than zero;

"**Asset Servicing Cost Rate**" means, in respect of a Basket Index and a Strategy Business Day

- (a) if the Asset Quantity in respect of such Basket Index on such Strategy Business Day (or, if such Strategy Business Day is not Basket Rebalancing Day, on the Basket Rebalancing Day immediately preceding such Strategy Business Day) was greater than or equal to zero, the Long Asset Servicing Cost Rate in respect of such Basket Index; or
- (b) otherwise, the Short Asset Servicing Cost Rate in respect of such Basket Index;

"**Asset Sponsor**" means, in respect of each Basket Index, Goldman Sachs International, or any successor thereto;

"**Asset Trading Day**" means, in respect of:

- (a) Basket Index i=1, business days according to Chicago Mercantile Exchange Globex trading calendar. The Good Friday holiday shall not be considered a business day; and
- (b) Basket Index i=2, business days according to the Eurex trading calendar;

"**Asset Transaction Cost Rate**" means, in respect of each Basket Index, 0.0005;

"**Basket Observation Day**" means, with respect to:

- (a) the Strategy Inception Date, the Strategy Inception Date; and
- (b) a Basket Rebalancing Day which is not the Strategy Inception Date, the calendar day falling two (2) Strategy Business Days before such day;

"**Basket Rebalancing Day**" means the Strategy Inception Date and, thereafter, the 10th calendar day of each calendar month, or the immediately following Basket Trading Day if such day is not a Basket Trading Day. If on any Strategy Business Day, the Basket Value (calculated immediately before subtracting the Basket Rebalancing Cost for such day) or the Asset Value of a Basket Index is equal to or less than zero, no further Basket Rebalancing Day will occur on or after such day

"**Basket Trading Day**" means each Strategy Business Day which is an Asset Trading Day for each Basket Index.

"**Currency Exchange Rate**" means, in respect of an Asset Business Day, the 4 p.m. London closing spot mid rate for converting one unit of EUR into USD as published by WM Performance Services or any successor company for such day.

The days on which Currency Exchange Rates are usually fixed and published, as determined by the Strategy Calculation Agent, by WM Performance Services or any successor company are referred to herein as "**Fixing Days**". If any calendar day is not a Fixing Day, the Strategy Calculation Agent will use the level of the relevant Currency Exchange Rate published for the applicable Fixing Day immediately preceding such calendar day.

If any calendar day is a Fixing Day but the applicable Currency Exchange Rate is not available on such day at the applicable time indicated above, the Strategy Calculation Agent shall determine the Currency Exchange Rate in respect of such Fixing Day in a commercially reasonable manner;

"**Long Asset Servicing Cost Rate**" means in respect of each Basket Index, 0.0015.

"**Reference Level**" means, in respect of:

- (a) any Basket Index, on any given calendar day, the closing level of the relevant Basket Index as determined by the relevant Asset Sponsor in respect of such calendar day; and
- (b) any Money Market Index:
 - (A) on any MM Index Business Day, its MM Index Value as calculated by the Strategy Sponsor in respect of such Money Market Index and such MM Index Business Day; and
 - (B) on any day other than a MM Index Business Day, its MM Index Value as calculated by the Strategy Sponsor in respect of such Money Market Index and the immediately preceding MM Index Business Day,

for the purposes of this sub-paragraph (b), in each case as such term is defined in Section 9 (*Description of the Money Market Indices*);

"**Short Asset Servicing Cost Rate**" means, in respect of each Basket Index, zero.

"**Strategy Business Day**" means each weekday (being Monday to Friday of each calendar week) starting from and including the Strategy Inception Date;

"Strategy Currency" means USD;

"Strategy Inception Date" means 10 January 2022;

"Strategy Publication Data Source" means <http://marquee.gs.com> (or any successor page thereto);

"Strategy Rebalancing Day" means the Strategy Inception Date and thereafter each Strategy Business Day for which the Basket Value is strictly greater than zero; and

"Strategy Trading Day" means each Basket Trading Day from and including the Strategy Inception Date.

3.12 Disruption Events, Adjustment Events, Change in Methodology and Corrections

In respect of the Govt Bond Strategy, please see Section 10.1 (*Disruption Events - In respect of each of the Index, the Underlying Index and the Govt Bond Strategy only*), Section 11 (*Corrections*) and Section 12 (*Change in Methodology*).

4. Description of the US Government Bond Futures Rolling Strategy Index

Capitalised terms defined in this Section 4 (*Description of the US Government Bond Futures Rolling Strategy Index*) shall have the meaning given to them solely for the purposes of this Section 4 (*Description of the US Government Bond Futures Rolling Strategy Index*) unless otherwise specified or cross-referred to.

4.1 Overview of the US Government Bond Futures Rolling Strategy Index

The US Government Bond Futures Rolling Strategy Index (Total Return USD) (*Bloomberg Code: FRSIUSB <Index>*) (referred to herein as the "**UST Futures Index**") is a proprietary index designed to provide investors with 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 below Section 4.9 (*10-Year U.S. Treasury Note Futures Contracts*).

4.2 The UST Futures Index

The UST Futures Index is sponsored by Goldman Sachs International but is calculated by Standard & Poor's, as index calculation agent. The UST Futures Index operates in accordance with a set of pre-determined rolling methodology and formulae, and Standard & Poor's, the index calculation agent, does not exercise any discretion with respect to the UST Futures Index. The UST Futures Index is, therefore, not a managed index. As the index sponsor, Goldman Sachs International is not acting as an investment adviser or performing a discretionary management role with respect to the UST Futures Index and, as a result, has no fiduciary duty to any person in respect of the UST Futures Index.

4.3 UST Futures Index Starting Value

The UST Futures Index has been given a starting value of 100 as of December 31, 1991, which is the initial calculation date of the UST Futures Index.

4.4 Daily Strategy Value Calculation

The UST Futures Index is a U.S. dollar denominated index and is calculated on each day on which the CBOT is open for trading (such day, a "**exchange business day**"). The value of the UST Futures Index on any given exchange business day will be calculated as the *product* of (i) the value of the UST Futures Index as of the immediately preceding exchange 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 exchange 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 on the relevant exchange business day and (b) the 10Y U.S. Treasury Futures Contract Valuation Price on the immediately preceding exchange 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 exchange business day means the official daily settlement price per 10Y U.S. Treasury Futures Contract quoted by the CBOT on such exchange 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 index 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.

4.5 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 exchange business days starting from, and including, the third last exchange business day prior to the first notice date of the first nearby 10Y U.S. Treasury Futures Contracts to, and including, the last exchange 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 exchange 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.

4.6 Price of 10Y U.S. Treasury Futures Contracts Unavailable

Unavailable Outside of the Roll Period: If, on any exchange 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 UST Futures Index but will publish the last available value.

If, on the immediately following exchange 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 exchange business day and (b) the last available 10Y U.S. Treasury Futures Contracts Valuation Price (however, for the avoidance of doubt, if such exchange 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 exchange business day, then, as further described below, the calculation agent will not calculate any value for the UST Futures Index but will publish the last available 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 exchange 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 exchange 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 exchange 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 exchange 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 exchange 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 exchange 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 exchange 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 exchange 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 exchange 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 exchange 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 exchange 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 exchange 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 exchange 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 exchange business day of the roll period (including where such price is not published or is otherwise unavailable on both of the first and third exchange business days of the roll period only, both of the second and third exchange business days of the roll period only or all of the three exchange 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 exchange business day immediately following the third exchange 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 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 last reference day.

On any given exchange 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 "no-roll exchange business day"; for the avoidance of doubt, a no-roll exchange business day may include any exchange business day of the roll period, as

the case may be), the calculation agent will not calculate any value for the UST Futures Index but will publish the last available value.

If, on any exchange business day immediately following such no-roll exchange 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 UST Futures Index on such exchange business day, which can be summarized as follows:

On such exchange business day, the level of the UST Futures Index will be computed as the *product* of:

- the value of the UST Futures Index as of the last exchange 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 "**last reference day**"); and
- the *sum* of:
 - (i) the *daily return ratio* reflecting either:
 - (a) if such exchange 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 last reference day to such exchange business day; or
 - (b) if such exchange 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 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 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 UST Futures Index but will publish the last available value),

and

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

4.7 Publication

The value of the UST Futures Index is published on the Bloomberg page *FRSIUSB <Index>* (or any successor page).

4.8 UST Futures Index Calculation Formulae

The formulae for the calculation of the UST Futures Index 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).

$$TRI_t = \left(r_t + \frac{t-n}{360} \cdot n \right) TRI_{t-n};$$

$$\left. \begin{array}{l} r_t = \frac{cP_{1,t}}{cP_{1,t-n}}, \\ \text{when NOT in the 3-day roll period} \end{array} \right\}$$

$$r_t = \left(1 - \frac{m-1}{3}\right) \cdot \frac{cP_{1,t}}{cP_{1,t-n}} + \frac{m-1}{3} \cdot \frac{cP_{2,t}}{cP_{2,t-n}}$$

when on the m^{th} day of the roll period, $m = 1, 2, 3$

Where

t = The relevant exchange business day;

TRI_t = The value of UST Futures Index as of day t ;

i_{t-n} = Overnight interest rate as of $(t - n)$

n = The number of actual calendar days between t and the immediately preceding exchange business day $(t - n)$;

r_t = Daily price return of the value of the 10Y U.S. Treasury Futures Contracts on t ;

$cP_{1,t}$ = 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

$cP_{2,t}$ = 10Y U.S. Treasury Futures Contracts Valuation Price of the second nearby 10Y U.S. Treasury Futures Contracts on t .

Note: All calculations are based on seven significant figures (rounded at the eighth significant figure), and the value is published up to two decimal places (rounded at the third decimal place).

4.9 10-Year U.S. Treasury Note Futures Contracts

The 10-Year U.S. Treasury Note futures contracts underlying the UST Futures Index 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.

4.10 Adjustments to the UST Futures Index

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

5. Description of the European Government Bond Futures Rolling Strategy Index

Capitalised terms defined in this Section 5 (*Description of the European Government Bond Futures Rolling Strategy Index*) shall have the meaning given to them solely for the purposes of this Section 4 (*Description of the European Government Bond Futures Rolling Strategy Index*) unless otherwise specified or cross-referred to.

5.1 Overview of the European Government Bond Futures Rolling Strategy Index

The European Government Bond Futures Rolling Strategy Index (Total Return EUR) (*Bloomberg Code: FRSIEUB <Index>*) (the "**Euro Bond Futures Strategy Index**") is a Goldman Sachs International proprietary index designed to provide investors with a synthetic exposure to the total return (including income from interest accruing at the relevant overnight interest rate (as described below)) of the first nearby "Euro Bond Futures Contracts". Euro Bond Futures Contracts are futures contracts on federal bonds of the Federal Republic of Germany (such bonds, the "German Bonds") currently listed for trading on the Eurex. For further information on

the Euro Bond Futures Contracts and the German Bonds, please refer to Section 5.10 (*The German Bond Futures Contracts*) and Section 5.11 (*The German Bonds*) below.

5.2 The Euro Bond Futures Strategy Index

The Euro Bond Futures Strategy Index is sponsored by Goldman Sachs International but is calculated by Standard & Poor's, as index calculation agent. The Euro Bond Futures Strategy Index operates in accordance with a pre-determined rolling methodology and set of formulae, and Standard & Poor's, the index calculation agent, does not exercise any discretion with respect thereto. The Euro Bond Futures Strategy Index is, therefore, not a managed index. As the index sponsor, Goldman Sachs International is not acting as an investment adviser or performing a discretionary management role with respect to the Euro Bond Futures Strategy Index and, as a result, has no fiduciary duty to any person in respect of the Euro Bond Futures Strategy Index. Goldman Sachs International may exercise discretion, however, in a limited number of exceptional circumstances, including, without limitation, where the Euro Bond Futures Contracts are modified or, as sponsor of the Strategy, where a Euro Bond Futures Contract Valuation Price is not published or otherwise unavailable or a market disruption event affects the Euro Bond Futures Strategy Index

5.3 The Euro Bond Futures Strategy Index Starting Value

The Euro Bond Futures Strategy Index has been given a starting value of 100 as of December 31, 1991, which was the initial calculation date of the Euro Bond Futures Strategy Index.

5.4 Daily Strategy Value Calculation

The Euro Bond Futures Strategy Index is a euro denominated index and is calculated on each Eurex exchange business day. The value of the Euro Bond Futures Strategy Index on each Eurex exchange business day will be calculated as the *product* of (i) the value of the Euro Bond Futures Strategy Index as of the immediately preceding Eurex exchange business day *multiplied* by (ii) the *sum* of (x) the daily return ratio of the value of the Euro Bond Futures Contracts (calculated as described below) on such Eurex exchange business day *plus* (y) the overnight interest rate for the given Eurex exchange business day *multiplied* by the applicable day count fraction based on the number of days in the calculation period.

Daily Return Ratio of the Value of the Euro Bond Futures Contracts: On each Eurex exchange business day (other than during the roll period as described below), the daily return ratio of the value of Euro Bond Futures Contracts is calculated as the *quotient* of (a) the Euro Bond Futures Contract Valuation Price on the relevant Eurex exchange business day *divided* by (b) the Euro Bond Futures Contract Valuation Price on the immediately preceding Eurex exchange business day. During each roll period, the daily return ratio of the values of the Euro Bond Futures Contracts is calculated as the *quotient* of (a) the Euro Bond Futures Contract Valuation Price of the second nearby Euro Bond Futures Contracts on such Eurex exchange business day *divided* by (b) the Euro Bond Futures Contract Valuation Price of the second nearby Euro Bond Futures Contracts on the immediately preceding Eurex exchange business day, to the extent the first nearby Euro Bond Futures Contracts have been rolled over.

Euro Bond Futures Contract Valuation Price: The Euro Bond Futures Contract Valuation Price on each Eurex exchange business day is the official daily settlement price per Euro Bond Futures Contract quoted by Eurex on such Eurex exchange business day.

Overnight Interest Rate: The overnight interest rate used for purposes of calculating the value of the Euro Bond Futures Strategy Index is, in the period:

- (i) up to (and including) 20 December 2021, the overnight interest rate as published on Reuters page EUR-EONIA-OIS-COMPOUND on EONIA RSF.REC.EONIA=.NaE, which follows the ACT/360 day count fraction, as defined in the 2006 ISDA Definitions; and
- (ii) from (and including) 20 December 2021, in respect of any day, the sum of (a) the euro short-term rate (€STR) administered by the European Central Bank (or any successor administrator) in respect of such day; and (b) a spread of 8.50 basis points,

in each case, if such rate is not published or is otherwise unavailable for any Eurex exchange business day, then the last available overnight interest rate published on such page will be used as the overnight interest rate for such Eurex exchange business day.

Unavailability of Euro Bond Futures Contract Valuation Price: The index calculation agent will not, however, calculate the value of the Euro Bond Futures Strategy Index, or will calculate such value pursuant to a different methodology (as described below under "*Price of Euro Bond Futures Contracts Unavailable – Unavailable Within the Roll Period*"), as the case may be, at any time where the Euro Bond Futures Contract Valuation Price for the first nearby and/or the second nearby Euro Bond Futures Contracts, as applicable, is not published or is otherwise unavailable as further described below.

5.5 Roll Methodology

Each Euro Bond Futures Contract has a quarterly contract month for expiration (March, June, September or December). At any given time, the Euro Bond Futures Strategy Index will include the first nearby Euro Bond Futures Contracts. As the first nearby Euro Bond Futures Contracts come to expiration, they will be replaced by the second nearby Euro Bond Futures Contracts. For example, a Euro Bond Futures Contract purchased and held in May may specify a June expiration. As time passes, the contract expiring in June is replaced by a Euro Bond Futures Contract with a September expiration during the relevant roll period. This process is referred to as "rolling".

Roll Period: Rolling will be carried out during the three Eurex exchange business days starting from, and including, the third to last Eurex exchange business day prior to the first notice date of the first nearby Euro Bond Futures Contracts to, and including, the last Eurex exchange business day prior to the first notice date of such Euro Bond Futures Contracts. Such period is referred to from time to time as the "roll period". On each Eurex exchange business day of the roll period, one third of the notional investment in the first nearby Euro Bond Futures Contracts will be rolled into the second nearby Euro Bond Futures Contracts, and the prices at which Euro Bond Futures Contracts are rolled will be based on the Euro Bond Futures Contract Valuation Prices for each of the first nearby and second nearby Euro Bond Futures Contracts. Rolling will, however, be carried out pursuant to a different methodology when at any time during the roll period the Euro Bond Futures Contract Valuation Prices for either or both of the first nearby and second nearby Euro Bond Futures Contracts are not published or are otherwise unavailable as further described below.

5.6 Price of Euro Bond Futures Contracts Unavailable

Unavailable Outside of the Roll Period: If, on any Eurex exchange business day that does not fall within the roll period, the Euro Bond Futures Contract Valuation Price for the first nearby Euro Bond Futures Contracts is not published or is otherwise unavailable, then the index calculation agent will not calculate any value for the Euro Bond Futures Strategy Index but will publish the last available value.

In such an instance, if, on the immediately following Eurex exchange business day, the Euro Bond Futures Contract Valuation Price for the first nearby Euro Bond Futures Contracts is available, the daily return ratio of the value of the Euro Bond Futures Contracts will be calculated as the *quotient* of (a) the Euro Bond Futures Contract Valuation Price on that immediately following Eurex exchange business day *divided* by (b) the last available Euro Bond Futures Contract Valuation Price; *provided, however*, that, for the avoidance of doubt, if such immediately following Eurex exchange business day is the first day of the roll period and the Euro Bond Futures Contract Valuation Price for the second nearby Euro Bond Futures Contracts is not published or is otherwise unavailable on that immediately following Eurex exchange business day, then, as further described below, the index calculation agent will not calculate any value for the Euro Bond Futures Strategy Index but will publish the last available value.

Unavailable Within the Roll Period: If the Euro Bond Futures Contract Valuation Price is not published or is otherwise unavailable for either or both of the first nearby and second nearby Euro Bond Futures Contracts at any time during the roll period, then that rolling will be carried out pursuant to the following alternative rolling methodology:

- **Case 1:** If (a) the Euro Bond Futures Contract Valuation Price is not published or is otherwise unavailable on the first Eurex exchange business day of the roll period for either or both of the first nearby and second nearby Euro Bond Futures Contracts *and* (b) the Euro Bond Futures Contract Valuation Price is available on the second Eurex exchange business day of the roll period for both the first nearby and second nearby Euro Bond Futures Contracts, then:
 - one half of the notional investment in the first nearby Euro Bond Futures Contracts will be rolled into the second nearby Euro Bond Futures Contracts on that second Eurex exchange business day of the roll period; *and*

- if the Euro Bond Futures Contract Valuation Price is also available on the third Eurex exchange business day of the roll period for both the first nearby and second nearby Euro Bond Futures Contracts, the second half of the notional investment in the first nearby Euro Bond Futures Contracts will be rolled over into the second nearby Euro Bond Futures Contracts on that third Eurex exchange business day of the roll period; *but*
- if the Euro Bond Futures Contract Valuation Price is not published or is otherwise unavailable on such third Eurex exchange business day of the roll period for either or both of the first nearby and second nearby Euro Bond Futures Contracts, then rolling of any remaining portion of the notional investment in the first nearby Euro Bond Futures Contracts will be carried out as set out below under Case 4.
- **Case 2:** If the Euro Bond Futures Contract Valuation Price is not published or is otherwise unavailable on both the first and second Eurex exchange business days of the roll period for either or both of the first nearby and second nearby Euro Bond Futures Contracts, then:
 - if the Euro Bond Futures Contract Valuation Price is available on the third Eurex exchange business day of the roll period for both the first nearby and second nearby Euro Bond Futures Contracts, then the entire notional investment in the first nearby Euro Bond Futures Contracts will be rolled into the second nearby Euro Bond Futures Contracts on the third Eurex exchange business day of the roll period; *but*
 - otherwise, the rolling of any remaining portion of the notional investment in the first nearby Euro Bond Futures Contracts will be carried out as set out below under Case 4.
- **Case 3:** If the Euro Bond Futures Contract Valuation Price is available on the first Eurex exchange business day of the roll period for both the first nearby and second nearby Euro Bond Futures Contracts (on which day one-third of the notional investment in the first nearby Euro Bond Futures Contracts is rolled over into the second nearby Euro Bond Futures Contracts), but the Euro Bond Futures Contract Valuation Price is not published or is otherwise unavailable on the second Eurex exchange business day of the roll period for either or both of the first nearby and second nearby Euro Bond Futures Contracts, then the remaining two-thirds of the notional investment in the first nearby Euro Bond Futures Contracts will be rolled into the second nearby Euro Bond Futures Contracts on the third Eurex exchange business day of the roll period, *unless* the Euro Bond Futures Contract Valuation Price is not published or is otherwise unavailable on such third Eurex exchange business day of the roll period for either or both of the first nearby and second nearby Euro Bond Futures Contracts (in which case the rolling of any remaining portion of the notional investment in the first nearby Euro Bond Futures Contracts will be carried out as set out below under Case 4).
- **Case 4:** In any situation where the Euro Bond Futures Contract Valuation Price for either or both of the first nearby and second nearby Euro Bond Futures Contracts is not published or is otherwise unavailable on the third Eurex exchange business day of the roll period (including where such price is not published or is otherwise unavailable on both the first and third Eurex exchange business days of the roll period only, on both the second and third Eurex exchange business days of the roll period only or on all three Eurex exchange business days of the roll period), then any remaining amount of the notional investment in the first nearby Euro Bond Futures Contracts will be rolled into the second nearby Euro Bond Futures Contracts on the first notice date, which is the Eurex exchange business day immediately following the third Eurex exchange 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 Euro Bond Futures Contracts and the second nearby Euro Bond Futures Contracts, provided that if, on such first notice date, the first traded price for the first nearby Euro Bond Futures Contracts and/or the second nearby Euro Bond Futures Contracts is not published or is otherwise unavailable, then the first nearby Euro Bond Futures Contracts will be sold at the Euro Bond Futures Contract Valuation Price for such first nearby Euro Bond Futures Contracts on the last reference day (as defined below) the second nearby Euro Bond Futures Contracts will be bought at the Euro Bond Futures Contract Valuation Price for such second nearby Euro Bond Futures Contracts on the last reference day.

On each Eurex exchange business day on which rolling does not occur because the Euro Bond Futures Contract Valuation Price is not published or is otherwise unavailable for either or both of the first nearby and second nearby Euro Bond Futures Contracts (such day, a "Bond no-roll Eurex exchange business day"; for the avoidance of doubt, a Bond no-roll Eurex exchange business day may include any Eurex exchange business day of the roll

period, as the case may be), the index calculation agent will not calculate any value for the Euro Bond Futures Strategy Index but will publish the last available value.

If, on any Eurex exchange business day immediately following such Bond no-roll Eurex exchange business day, the Euro Bond Futures Contracts are rolled over pursuant to the alternative methodology described above, then the index calculation agent will apply alternative calculation methods to compute the level of the Euro Bond Futures Strategy Index on such Eurex exchange business day, which can be summarized as follows:

On such Eurex exchange business day immediately following such Bond no-roll Eurex exchange business day, the level of the Euro Bond Futures Strategy Index will be computed as the *product* of:

- the value of the Euro Bond Futures Strategy Index as of the last Eurex exchange business day on which the Euro Bond Futures Contract Valuation Prices for both of the first nearby and second nearby Euro Bond Futures Contracts were available (such day, the "last reference day"); *multiplied* by
- the *sum* of:
 - (i) the *daily return ratio* reflecting either:
 - (a) if such Eurex exchange business day falls within the roll period, the weighted performance of the first nearby Euro Bond Futures Contracts and the weighted performance of the second nearby Euro Bond Futures Contracts from the last reference day to such Eurex exchange business day; or
 - (b) if such Eurex exchange business day is a first notice date of the first nearby Euro Bond Futures Contracts, the *product* of (x) the weighted performance of the first nearby Euro Bond Futures Contracts from the last reference day up to the rolling effected as of the opening of the market on such first notice date, (y) the weighted performance of the second nearby Euro Bond Futures Contracts from the 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 Euro Bond Futures Contracts, including the second nearby contracts into which any remaining portion of the first nearby Euro Bond 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 Euro Bond Futures Contracts on such first notice date (for the avoidance of doubt, if the official daily settlement price of the second nearby Euro Bond Futures Contracts is not published or is otherwise unavailable on such first notice date, then the index calculation agent will not calculate any value for the Euro Bond Futures Strategy Index but will publish the last available value),

plus

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

5.7 Publication

The value of the Euro Bond Futures Strategy Index is published on the Bloomberg page *FRSIEUB* <*Index*> (or any successor page).

5.8 Euro Bond Futures Strategy Index Calculation Formulae

The formulae for the calculation of the Euro Bond Futures Strategy Index 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 Euro Bond Futures Contracts is not published or is otherwise unavailable (as further described above).

$$TRI_t = \left(r_t + \frac{i_{t-n}}{360} \cdot n \right) TRI_{t-n};$$

$$\left\{ \begin{array}{l} r_t = \frac{cP_{1,t}}{cP_{1,t-n}}, \\ \text{when NOT in the 3-day roll period} \end{array} \right.$$

$$r_t = \left(1 - \frac{m-1}{3}\right) \cdot \frac{cP_{1,t}}{cP_{1,t-n}} + \frac{m-1}{3} \cdot \frac{cP_{2,t}}{cP_{2,t-n}}$$

when on the mth day of the roll period, m = 1, 2, 3

Where

t = The relevant Eurex exchange business day;

TRI_t = The value of Euro Bond Futures Strategy Index as of day t;

i_{t-n} = Overnight interest rate as of (t - n);

n = The number of actual calendar days between t and the immediately preceding Eurex exchange business day (t - n);

r_t = Daily price return of the value of the Euro Bond Futures Contracts on t;

cP_{1,t} = Euro Bond Futures Contract Valuation Price of the first nearby Euro Bond 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 Euro Bond Futures Contracts shall mean the Euro Bond Futures Contracts into which the notional investment has been rolled; and

cP_{2,t} = Euro Bond Futures Contract Valuation Price of the second nearby Euro Bond Futures Contracts on t.

Note: All calculations are based on seven significant figures (rounded at the eighth significant figure), and the value is published up to two decimal places (rounded at the third decimal place).

5.9 Adjustments to the Euro Bond Futures Strategy Index

Investors should be aware that if the terms of the Euro Bond Futures Contracts are modified Goldman Sachs International, as sponsor of the Euro Bond Futures Strategy Index, may take such steps as it considers appropriate in response to such modification.

5.10 The German Bond Futures Contracts

The German Bond futures contracts underlying the Euro Bond Futures Strategy Index are quarterly three-month contracts to buy or sell standardized trading "units". One trading unit of German Bond futures contracts equals one federal bond issued by the Federal Republic of Germany with a par value of €100,000. The German Bond futures contract closest to expiration at any given time is known as the "first nearby" futures contract, and the German Bond futures contract that is second closest to expiration at any given time is known as the "second nearby" futures contract.

5.11 The German Bonds

The bonds on which Euro Bond Futures Contracts are based are federal bonds issued by the Federal Republic of Germany. These bonds have a term of 8.5 to 10.5 years and a coupon of 6%. Interest is paid annually.

6. Description of the Commodity Index

Capitalised terms defined in this Section 6 (*Description of the Commodity Index*) (including in Section 6.9 (*Definitions in respect of the Commodity Index*)) shall have the meaning given to them solely for the purposes of this Section 6 (*Description of the Commodity Index*) unless otherwise specified or cross-referred to.

6.1 Overview of the Commodity Index

The Goldman Sachs Commodity Focus Basket USD ER Index (*Bloomberg Code: GSISCFBU <Index>*) (referred to herein as the Commodity Index) seeks to provide synthetic exposure to the performance of a fixed and unequally weighted basket (the "**Basket**") of five underlying commodity indices (together the "**Components**" and each a "**Component**") which periodically (on a monthly basis) rebalances to assign a notional weight to each Component by reference to such fixed weights (the Component Weights, as set out in the table below).

