



Supplement No. 1 to Offering Circular, dated June 4, 2019

The Goldman Sachs Group, Inc.
Euro Medium-Term Notes, Series H

This Supplement No. 1 (the "Supplement") to the Offering Circular, dated June 4, 2019 (the "Offering Circular"), constitutes a supplement to the Offering Circular for the purposes of the Luxembourg Law on Prospectuses for Securities dated July 10, 2005, as amended (the "Prospectus Law"), and should be read in conjunction therewith. The terms defined in the Offering Circular have the same meaning when used in this Supplement.

This Supplement has been approved by the Luxembourg Stock Exchange in its capacity as competent authority under Part IV of the Prospectus Law.

To the extent that there is any inconsistency between (a) any statement in this Supplement and (b) any other statement in or incorporated by reference in the Offering Circular, the statements in this Supplement will prevail.

The following amendments to the Offering Circular are hereby made:

- The risk factor section "*As Calculation Agent, Goldman Sachs International Will Have the Authority to Make Determinations That Could Affect the Market Price of an Indexed Notes, When the Note Matures and the Amount Payable at Maturity*" on p. 24 of the Offering Circular is hereby deleted and replaced with the following:

As Calculation Agent, Goldman Sachs International Will Have the Authority to Make Determinations That Could Affect the Market Price of Floating Rate Notes and Indexed Notes, When the Note Matures and the Amount Payable at Maturity

As calculation agent, Goldman Sachs International will have discretion in making various determinations that affect the market price of floating rate and indexed notes, including all determinations regarding the relevant index or indices (including adjustments, rebasing and substitution, among other factors), any successor indices, index reference prices, contract prices, market disruption events, exchange business days, observation dates, any other factors or events relevant to the calculation of amounts dependent on the performance of the index or indices, business days, if applicable, interest amounts and interest payment dates, and the stated maturity. These determinations could adversely affect the market price for the note and may present Goldman Sachs International with a conflict of interest of the kind described above under "— Our Business Activities May Create Conflicts of Interest Between You and Us". Furthermore if, with respect to any note linked to the U.S. dollar LIBOR base rate (a "USD LIBOR note"), Goldman Sachs International determines on or prior to the relevant interest determination date that a benchmark transition event and its related benchmark replacement date (each as defined under "Description of the Program — Interest Rates — Floating Rate Notes") have occurred with respect to the U.S. dollar LIBOR base rate ("USD LIBOR"), then the benchmark transition provisions will thereafter apply to all determinations of the interest payable on USD LIBOR notes. In accordance with the benchmark transition provisions, after a benchmark transition event and its related benchmark replacement date have occurred, the interest that will be payable for each interest period on USD LIBOR notes will be determined by reference to the benchmark replacement (as defined under "Description of the Program — Interest Rates — Floating Rate Notes") and any applicable spread.

If Goldman Sachs International has determined that a benchmark transition event and its related benchmark replacement date have occurred with respect to USD LIBOR, Goldman Sachs International in its sole discretion may determine the benchmark replacement conforming changes (as defined under Description of the Program — Interest Rates — Floating Rate Notes") in a manner that is consistent with industry-accepted practices for such benchmark replacement. If LIBOR (including USD LIBOR), EURIBOR or the CMS rate is unavailable on an interest determination date and Goldman Sachs International has not determined that (i) with respect to USD LIBOR, a benchmark transition event and its related benchmark replacement date have occurred, or (ii) with respect to LIBOR (other than USD LIBOR), EURIBOR or the CMS rate, the LIBOR base rate, EURIBOR base rate, or CMS rate, as applicable, has been discontinued, Goldman Sachs International will have sole discretion to determine LIBOR (including USD LIBOR),

EURIBOR or the CMS rate, as applicable, for the relevant interest reset date. The exercise of discretion by Goldman Sachs International could adversely affect the return on, value of and market for your notes and may present Goldman Sachs International with a conflict of interest. We may change the calculation agent at any time without notice.

- The text under the heading “*Regulation and Reform of ‘Benchmarks’, Including LIBOR, EURIBOR and Other Interest Rate, Equity, Foreign Exchange Rate and Other Types of Benchmarks May Cause such “Benchmarks” to Perform Differently Than in the Past, or to Disappear Entirely, or Have Other Consequences Which Cannot be Predicted*” on p. 27 of the Offering Circular is hereby deleted and replaced with the following:

The London Interbank Offered Rate (“LIBOR”), the Euro Interbank Offered Rate (“EURIBOR”) and other interest rate indices which are deemed to be “benchmarks” are the subject of ongoing national and international regulatory reform. These reforms may cause such “benchmarks” to perform differently than in the past, or to disappear entirely, or have other consequences which cannot be predicted. Any such consequence could have a material adverse effect on the return on, value of and market for any notes linked to such a “benchmark”.

On 17 May 2016, the Council of the European Union adopted the EU Regulation on indices used as benchmarks and financial instruments and financial contracts or to measure the performance of investment funds (the “Benchmark Regulation”). The Benchmark Regulation entered into force in June 2016 and became fully applicable in the EU on 1 January 2018 (save that certain provisions, including those related to “critical benchmarks”, took effect as at 30 June 2016), subject to certain transitional provisions. The Benchmark Regulation applies to the contribution of input data to a “benchmark”, the provision or administration of a “benchmark” and the use of a “benchmark” in the EU. Among other things, it (a) requires EU benchmark administrators to be authorised or registered as such and to comply with extensive requirements relating to the administration of “benchmarks” and (b) prohibits certain uses by EU supervised entities of “benchmarks” provided by EU administrators which are not authorised or registered in accordance with the Benchmark Regulation (or, if located outside of the EU, deemed equivalent or recognised or endorsed).

The scope of the Benchmark Regulation is wide and, in addition to so-called “critical benchmark” indices such as LIBOR and EURIBOR, will apply to many other interest rate indices which are referenced in the notes. The Benchmark Regulation could have a material impact on notes linked to a “benchmark” rate or index, including in any of the following circumstances:

- a rate or index which is a “benchmark” may not be used in certain ways by an EU supervised entity if (subject to applicable transitional provisions) its administrator does not obtain authorisation or registration (or, if a non-EU entity, does not satisfy the “equivalence” conditions and is not “recognised” pending an equivalence decision). In such event, depending on the particular “benchmark” and the applicable terms of the notes, the notes could be de-listed, adjusted, redeemed prior to maturity or otherwise impacted; and
- the methodology or other terms of the “benchmark” could be changed in order to comply with the terms of the Benchmark Regulation, and such changes could have the effect of reducing or increasing the rate or level or affecting the volatility of the published rate or level, and could lead to adjustments to the terms of the notes, including Calculation Agent determination of the rate or level in its discretion.

The Benchmark Regulation and any other international, national or other proposals for reform or the general increased regulatory scrutiny of “benchmarks” could increase the costs and risks of administering or otherwise participating in the setting of a “benchmark” and complying with any such regulations or requirements. Such factors may have the effect of discouraging market participants from continuing to administer or contribute to certain “benchmarks”, trigger changes in the rules or methodologies used in certain “benchmarks” or lead to the disappearance of certain

“benchmarks”, including LIBOR (as discussed below). The disappearance of a “benchmark” or changes in the manner of administration of a “benchmark” could result in adjustment to the terms and conditions, early redemption, discretionary valuation by the calculation agent or change in the relevant benchmark by the calculation agent, delisting or other consequence in relation to notes linked to such “benchmark”. Any such consequence could have a material adverse effect on the return on, value of and market for any such notes.

- The text under the heading “*U.K. Regulators Will No Longer Persuade or Compel Banks to Submit Rates for Calculation of LIBOR After 2021; Interest Rate Benchmark May Be Discontinued*” on p. 28 of the Offering Circular is hereby deleted and replaced with the following:

The Financial Conduct Authority (FCA), which regulates LIBOR, has announced that it will not compel banks to contribute to LIBOR (including USD LIBOR) after 2021. It is likely that banks will not continue to provide submissions for the calculation of LIBOR after 2021 and possibly prior to then. Similarly, it is not possible to know whether LIBOR will continue to be viewed as an acceptable market benchmark, what rate or rates may become accepted alternatives to LIBOR, or what the effect of any such changes in views or alternatives may have on the financial markets for LIBOR-linked financial instruments. It is not possible to predict the effect that any development relating to LIBOR will have on USD LIBOR or your notes. If, in respect of any note linked to USD LIBOR, the calculation agent determines that a benchmark transition event and its related benchmark replacement date have occurred with respect to USD LIBOR, then a benchmark replacement will be selected by the calculation agent in accordance with the provisions set forth under “Description of the Program — Interest Rates — Floating Rate Notes — Effect of Benchmark Transition Event on USD LIBOR Notes” (the benchmark transition provisions). The selection of a benchmark replacement, and any decisions, determinations or elections made by the calculation agent in connection with implementing a benchmark replacement with respect to the notes in accordance with the benchmark transition provisions, could result in adverse consequences to the return on, value of and market for the notes. Further, there is no assurance that the characteristics of any benchmark replacement will be similar to USD LIBOR, or that any benchmark replacement will produce the economic equivalent of USD LIBOR. If, in respect of (i) any LIBOR note (other than a USD LIBOR note), (ii) any EURIBOR note, or (iii) any CMS rate note, the calculation agent determines on the relevant interest determination date that the LIBOR base rate, EURIBOR base rate, or CMS rate, as applicable has been discontinued, then the calculation agent will use a substitute or successor base rate that it has determined in its sole discretion is most comparable to the LIBOR base rate, EURIBOR base rate, or CMS rate, as applicable, provided that if the calculation agent determines there is an industry-accepted successor base rate, then the calculation agent shall use such successor base rate. If the calculation agent has determined a substitute or successor base rate in accordance with the foregoing, the calculation agent in its sole discretion may determine the business day convention, the definition of business day and the interest determination date to be used and any other relevant methodology for calculating such substitute or successor base rate, including any adjustment factor needed to make such substitute or successor base rate comparable to the LIBOR base rate, EURIBOR base rate, or CMS rate, as applicable, in a manner that is consistent with industry-accepted practices for such substitute or successor base rate. See “Description of the Program — Interest Rates — Floating Rate Notes”.

- The following risk factor is hereby added underneath the risk factor *U.K. Regulators Will No Longer Persuade or Compel Banks to Submit Rates for Calculation LIBOR After 2021; Interest Rate Benchmark May Be Discontinued* on p. 28 of the Offering Circular:

Certain Risks Related to the Secured Overnight Financing Rate

Under the benchmark transition provisions of the notes with respect to USD LIBOR, if a benchmark transition event and its related benchmark replacement date have occurred with respect to USD LIBOR, then the rate of interest on the USD LIBOR notes will be determined based on the Secured Overnight Financing Rate (SOFR).

On June 22, 2017, the Alternative Reference Rates Committee (ARRC) convened by the

Board of Governors of the Federal Reserve System and the Federal Reserve Bank of New York identified SOFR, a U.S. treasuries repurchase financing rate to be published by the Federal Reserve Bank of New York, as the rate that, in the consensus view of the ARRC, represented best practice for use in certain new U.S. dollar derivatives and other financial contracts. SOFR is a broad measure of the cost of borrowing cash overnight collateralized by U.S. treasury securities and has been published by the Federal Reserve Bank of New York since April 2018. The Federal Reserve Bank of New York has also begun publishing historical indicative Secured Overnight Financing Rates going back to 2014. Investors should not rely on any historical changes or trends in SOFR as an indicator of future changes in SOFR.

The composition and characteristics of SOFR are not the same as those of LIBOR and SOFR is fundamentally different from LIBOR for two key reasons. First, SOFR is a secured rate, while LIBOR is an unsecured rate. Second, SOFR is an overnight rate, while LIBOR is a forward-looking rate that represents interbank funding over different maturities (e.g., three months). As a result, there can be no assurance that SOFR (including a term SOFR or compounded SOFR) will perform in the same way as LIBOR would have at any time, including, without limitation, as a result of changes in interest and yield rates in the market, market volatility or global or regional economic, financial, political, regulatory, judicial or other events.

Because SOFR is published by the Federal Reserve Bank of New York based on data received from other sources, we have no control over its methods of calculation, publication schedule, rate revision practices or availability of SOFR at any time without notice. There can be no guarantee, particularly given its relatively recent introduction, that SOFR will not be discontinued or fundamentally altered in a manner that is materially adverse to the interests of investors in the notes. If a benchmark transition event and its related benchmark replacement date have occurred with respect to USD LIBOR and the manner in which SOFR is calculated is changed, that change may result in a reduction of the amount of interest payable on the notes and the trading prices of the notes. In addition, the Federal Reserve Bank of New York may withdraw, modify or amend published SOFR data in its sole discretion and without notice. The interest rate for any day will not be adjusted for any modifications or amendments to SOFR data that the Federal Reserve Bank of New York may publish after the interest rate for that day has been determined.

Since SOFR is a relatively new reference rate, if a benchmark transition event and its related benchmark replacement date have occurred with respect to USD LIBOR, the related notes may not have an established trading market, and an established trading market may never develop or may not be very liquid. Market terms for floating-rate debt securities linked to SOFR, such as the spread over the base rate reflected in interest rate provisions or the manner of compounding the base rate, may evolve over time, and trading prices of the relevant notes may be lower than those of later-issued SOFR-based debt securities as a result. Similarly, if SOFR does not prove to be widely used in securities like the USD LIBOR notes, the trading price of the notes may be lower than those of notes linked to reference rates that are more widely used. Investors in the notes may not be able to sell the notes at all or may not be able to sell the notes at prices that will provide them with a yield comparable to similar investments that have a developed secondary market, and may consequently suffer from increased pricing volatility and market risk.

The benchmark replacements specified in the benchmark transition provisions include term SOFR, a forward-looking term rate which will be based on SOFR. term SOFR is currently being developed under the sponsorship of the Federal Reserve Bank of New York, and there is no assurance that the development of term SOFR will be completed. If a benchmark transition event and its related benchmark replacement date (each as defined under “Effect of Benchmark Transition Event on USD LIBOR Notes”) occur with respect to USD LIBOR and, at that time, a form of term SOFR has not been selected or recommended by the relevant governmental body, then the next-available benchmark replacement under the benchmark transition provisions will be used to determine the interest payable on the notes for the next applicable interest period and all subsequent interest periods (unless a benchmark transition event and its related benchmark replacement date occur with respect to that next-available benchmark replacement). Under the benchmark transition provisions, the first alternative after term SOFR is Compounded SOFR, which

is intended to be a compounded average of daily SOFR over the interest period.

- The text under the heading “*Description of the Program—Interest Rates—Floating Rate Notes—EURIBOR Notes*” on p. 52 of the Offering Circular is hereby deleted and replaced with the following:

If you purchase a EURIBOR note, your note will bear interest at a base rate equal to the interest rate for deposits in euros designated as “EURIBOR” and currently administrated by the European Money Markets Institute (or its successor) for purposes of compiling and publishing that rate. In addition, the EURIBOR base rate will be adjusted by the spread or spread multiplier, if any, specified in your pricing supplement. EURIBOR will be determined in the following manner:

EURIBOR for the relevant interest reset date will be the offered rate for deposits in euros having the underlying maturity specified in your pricing supplement, as that rate appears on the Reuters screen EURIBOR01 page (or any successor or replacement service or page) as of approximately 11:00 A.M., Brussels time, on the relevant EURIBOR interest determination date.

If the calculation agent determines on the relevant interest determination date that the EURIBOR base rate has been discontinued, then the calculation agent will use a substitute or successor base rate that it has determined in its sole discretion is most comparable to the EURIBOR base rate, provided that if the calculation agent determines there is an industry-accepted successor base rate, then the calculation agent shall use such successor base rate. If the calculation agent has determined a substitute or successor base rate in accordance with the foregoing, the calculation agent in its sole discretion may determine the business day convention, the definition of business day and the interest determination date to be used and any other relevant methodology for calculating such substitute or successor base rate, including any adjustment factor needed to make such substitute or successor base rate comparable to the EURIBOR base rate, in a manner that is consistent with industry-accepted practices for such substitute or successor base rate.

If the rate described above does not so appear on the Reuters screen EURIBOR01 page (or any successor or replacement service or page), unless the calculation agent determines to use a substitute or successor base rate as provided in the preceding paragraph, the following will apply:

- The calculation agent, after consulting such sources as it deems comparable to the foregoing display page, or any such source it deems reasonable, shall determine EURIBOR for that interest reset date in its sole discretion.
- The text under the heading “*Description of the Program —Interest Rates—Floating Rate Notes—LIBOR Notes*” on p. 55 of the Offering Circular is hereby deleted and replaced with the following:

If you purchase a LIBOR note, your note will bear interest at a base rate equal to LIBOR, which will be the London interbank offered rate for deposits in U.S. dollars or any other underlying currency, as specified in your pricing supplement. In addition, the applicable LIBOR base rate will be adjusted by the spread or spread multiplier, if any, specified in your pricing supplement. LIBOR will be determined in the following manner:

LIBOR will be the offered rate appearing on the Reuters screen LIBOR01 page (or any successor or replacement service or page) as of 11:00 A.M., London time, on the relevant LIBOR interest determination date, for deposits of the relevant underlying currency having the relevant underlying maturity beginning on the relevant interest reset date. Your pricing supplement will indicate the underlying currency and the underlying maturity that apply to your LIBOR note.

With respect to LIBOR notes for which the underlying currency is U.S. dollars (“USD LIBOR notes”), if the calculation agent determines that a benchmark transition event and its related benchmark replacement date have occurred prior to the reference time in respect of any determination of the benchmark on any date as described under “Effect of Benchmark Transition

Event on USD LIBOR Notes" below, the provisions set forth under "Effect of Benchmark Transition Event on USD LIBOR Notes" below shall apply, and the benchmark replacement will replace the then-current benchmark for all purposes relating to the notes in respect of such determination on such date and all determinations on all subsequent dates. In connection with the implementation of a benchmark replacement, the calculation agent will have the right to make benchmark replacement conforming changes from time to time.

With respect to LIBOR notes other than USD LIBOR notes, if the calculation agent determines on the relevant interest determination date that the LIBOR base rate has been discontinued, then the calculation agent will use a substitute or successor base rate that it has determined in its sole discretion is most comparable to the LIBOR base rate, provided that if the calculation agent determines there is an industry-accepted successor base rate, then the calculation agent shall use such successor base rate. If the calculation agent has determined a substitute or successor base rate in accordance with the foregoing, the calculation agent in its sole discretion may determine the business day convention, the definition of business day and the interest determination date to be used and any other relevant methodology for calculating such substitute or successor base rate, including any adjustment factor needed to make such substitute or successor base rate comparable to the LIBOR base rate, in a manner that is consistent with industry-accepted practices for such substitute or successor base rate.

If the rate described above does not so appear on the Reuters screen LIBOR01 (or any successor or replacement page), unless the calculation agent determines that (i) with respect to USD LIBOR notes, a benchmark transition event and its related benchmark replacement date have occurred, or (ii) with respect to LIBOR notes other than USD LIBOR notes, the LIBOR base rate has been discontinued, as so provided in the previous two paragraphs, the following will apply:

- The calculation agent, after consulting such sources as it deems comparable to the foregoing display page, or any such source it deems reasonable, shall determine LIBOR (including USD LIBOR) for the applicable interest reset date in its sole discretion.

Effect of Benchmark Transition Event on USD LIBOR Notes

If the calculation agent determines, with respect to USD LIBOR notes, that a benchmark transition event and its related benchmark replacement date have occurred prior to the reference time in respect of any determination of the benchmark on any date the benchmark replacement will replace the then-current benchmark for all purposes relating to the USD LIBOR notes in respect of such determination on such date and all determinations on all subsequent dates. In connection with the implementation of a benchmark replacement, the calculation agent will have the right to make benchmark replacement conforming changes from time to time.

Any determination, decision or election that may be made by the calculation agent pursuant to the benchmark transition provisions described herein, including any determination with respect to a tenor, rate or adjustment or of the occurrence or non-occurrence of an event, circumstance or date and any decision to take or refrain from taking any action or any selection, will be conclusive and binding absent manifest error, may be made in the calculation agent's sole discretion, and, notwithstanding anything to the contrary in the documentation relating to the notes, shall become effective without consent from the holders of the notes or any other party. For the avoidance of doubt, the calculation agent may change the terms of notes in order to implement such determination, decision or election.

The calculation agent's determination of the benchmark, and its calculation of the amount of interest for any relevant interest period, will be on file at our principal offices, will be made available to any holder of the notes upon request.

Defined terms used above:

The term "**benchmark**" means, initially, USD LIBOR; provided that if a benchmark transition event and its related benchmark replacement date have occurred with respect to USD LIBOR or the then-current benchmark, then "benchmark" means the applicable benchmark replacement.

The term “**benchmark replacement**” means the interpolated benchmark; provided that if the calculation agent cannot determine the interpolated benchmark as of the benchmark replacement date, then “benchmark replacement” means the first alternative set forth in the order below that can be determined by the calculation agent as of the benchmark replacement date:

- (1) the sum of: (a) term SOFR and (b) the benchmark replacement adjustment;
- (2) the sum of: (a) compounded SOFR and (b) the benchmark replacement adjustment;
- (3) the sum of: (a) the alternate rate of interest that has been selected or recommended by the relevant governmental body as the replacement for the then-current benchmark for the applicable corresponding tenor and (b) the benchmark replacement adjustment;
- (4) the sum of: (a) the ISDA fallback rate and (b) the benchmark replacement adjustment;
- (5) provided that if (i) the benchmark replacement cannot be determined in accordance with clause (3) or (4) above as of the benchmark replacement date or (ii) the calculation agent shall have determined that the ISDA fallback rate determined in accordance with clause (4) above is not an industry-accepted rate of interest as a replacement for the then-current benchmark for U.S. dollar denominated floating rate notes at such time, then the benchmark replacement shall be the sum of: (a) the alternate rate of interest that has been selected by the calculation agent as the replacement for the then-current benchmark for the applicable corresponding tenor giving due consideration to any industry-accepted rate of interest as a replacement for the then-current benchmark for U.S. dollar-denominated floating rate fixed income instruments at such time and (b) the benchmark replacement adjustment.

The term “**benchmark replacement adjustment**” means the first alternative set forth in the order below that can be determined by the calculation agent as of the benchmark replacement date:

- (1) the spread adjustment, or method for calculating or determining such spread adjustment, (which may be a positive or negative value or zero) that has been selected or recommended by the relevant governmental body for the applicable unadjusted benchmark replacement;
- (2) if the applicable unadjusted benchmark replacement is equivalent to the ISDA fallback rate, then the ISDA fallback adjustment;
- (3) the spread adjustment (which may be a positive or negative value or zero) that has been selected by the calculation agent giving due consideration to any industry-accepted spread adjustment, or method for calculating or determining such spread adjustment, for the replacement of the then-current benchmark with the applicable unadjusted benchmark replacement for U.S. dollar-denominated floating rate fixed income instruments at such time.

The term “**benchmark replacement conforming changes**” means, with respect to any benchmark replacement, any technical, administrative or operational changes (including changes to the definitions of “business day” and “interest period”, timing and frequency of determining rates, and making payments of interest, rounding of amounts or tenors and other administrative matters) that the calculation agent decides may be appropriate to reflect the adoption of such benchmark replacement in a manner substantially consistent with market practice (or, if the calculation agent decides that adoption of any portion of such market practice is not administratively feasible or if the calculation agent determines that no market practice for use of the benchmark replacement exists, in such other manner as the calculation agent determines is reasonably necessary).

The term “**benchmark replacement date**” means the earliest to occur of the following events with respect to the then-current benchmark:

- (1) in the case of clause (1) or (2) of the definition of “benchmark transition event,” the later of (a) the date of the public statement or publication of information referenced therein and (b) the date on which the administrator of the benchmark permanently or indefinitely ceases to provide the benchmark; or
- (2) in the case of clause (3) of the definition of “benchmark transition event,” the date of the public statement or publication of information referenced therein.

For the avoidance of doubt, if the event giving rise to the benchmark replacement date occurs on the same day as, but earlier than, the reference time in respect of any determination, the benchmark replacement date will be deemed to have occurred prior to the reference time for such determination.

Solely for purposes of the definitions of benchmark replacement date and benchmark transition event, references to “benchmark” also include any reference rate underlying such benchmark (for example, if the benchmark becomes the sum of (a) compounded SOFR and (b) the benchmark replacement adjustment in accordance with clause (2) of the definition of “benchmark” replacement, references to benchmark would include SOFR).

The term “**benchmark transition event**” means the occurrence of one or more of the following events with respect to the then-current benchmark:

- (1) a public statement or publication of information by or on behalf of the administrator of the benchmark announcing that such administrator has ceased or will cease to provide the benchmark, permanently or indefinitely, provided that, at the time of such statement or publication, there is no successor administrator that will continue to provide the benchmark;
- (2) a public statement or publication of information by the regulatory supervisor for the administrator of the benchmark, the central bank for the currency of the benchmark, an insolvency official with jurisdiction over the administrator for the benchmark, a resolution authority with jurisdiction over the administrator for the benchmark or a court or an entity with similar insolvency or resolution authority over the administrator for the benchmark, which states that the administrator of the benchmark has ceased or will cease to provide the benchmark permanently or indefinitely, provided that, at the time of such statement or publication, there is no successor administrator that will continue to provide the benchmark; or
- (3) a public statement or publication of information by the regulatory supervisor for the administrator of the benchmark announcing that the benchmark is no longer representative.

The term “**compounded SOFR**” means the compounded average of SOFRs for the applicable corresponding tenor, with the rate, or methodology for this rate, and conventions for this rate (which will be compounded in arrears with an observation, lookback and/or suspension period as a mechanism to determine the interest payable prior to the end of each interest period) being established by the calculation agent in accordance with:

- (1) the rate, or methodology for this rate, and conventions for this rate selected or recommended by the relevant governmental body for determining compounded SOFR; provided that:
- (2) if, and to the extent that, the calculation agent determines that compounded SOFR cannot be determined in accordance with clause (1) above, then the rate, or methodology for this rate, and conventions for this rate that have been selected by the calculation agent giving due consideration to any industry-accepted market practice for U.S. dollar-denominated floating rate fixed income instruments at such time.

For the avoidance of doubt, the calculation of compounded SOFR shall exclude the benchmark replacement adjustment and the applicable margin of basis points.

The term “**corresponding tenor**” with respect to a benchmark replacement means a tenor (including overnight) having approximately the same length (disregarding business day adjustment) as the applicable tenor for the then-current benchmark.

The term “**Federal Reserve Bank of New York’s website**” means the website of the Federal Reserve Bank of New York at <http://www.newyorkfed.org>, or any successor source. We are not incorporating by reference the website or any material it includes in this prospectus supplement.

The term “**interpolated benchmark**” with respect to the benchmark means the rate determined for the corresponding tenor by interpolating on a linear basis between: (1) the benchmark for the longest period (for which the benchmark is available) that is shorter than the corresponding tenor and (2) the benchmark for the shortest period (for which the benchmark is available) that is longer than the corresponding tenor.

The term “**ISDA definitions**” means the 2006 ISDA definitions published by the International Swaps and Derivatives Association, Inc. or any successor thereto, as amended or supplemented from time to time, or any successor definitional booklet for interest rate derivatives published from time to time.

The term “**ISDA fallback adjustment**” means the spread adjustment (which may be a positive or negative value or zero) that would apply for derivatives transactions referencing the ISDA definitions to be determined upon the occurrence of an index cessation event with respect to the benchmark for the applicable tenor.

The term “**ISDA fallback rate**” means the rate that would apply for derivatives transactions referencing the ISDA definitions to be effective upon the occurrence of an index cessation date with respect to the benchmark for the applicable tenor excluding the applicable ISDA fallback adjustment.

The term “**reference time**” with respect to any determination of the benchmark means (1) if the benchmark is USD LIBOR, 11:00 a.m. (London time) on the relevant LIBOR interest determination date, and (2) if the benchmark is not USD LIBOR, the time determined by the calculation agent in accordance with the benchmark replacement conforming changes.

The term “**relevant governmental body**” with respect to SOFR means the Federal Reserve Board and/or the Federal Reserve Bank of New York, or a committee officially endorsed or convened by the Federal Reserve Board and/or the Federal Reserve Bank of New York or any successor thereto.

The term “**SOFR**” with respect to any day means the secured overnight financing rate published for such day by the Federal Reserve Bank of New York, as the administrator of the benchmark, (or a successor administrator) on the Federal Reserve Bank of New York’s website.

The term “**term SOFR**” means the forward-looking term rate for the applicable corresponding tenor based on SOFR that has been selected or recommended by the relevant governmental body.

The term “**unadjusted benchmark replacement**” means the benchmark replacement excluding the benchmark replacement adjustment.

- The text under the heading “*Description of the Program —Interest Rates—Floating Rate Notes—USD CMS Rate Notes*” on p. 57 of the Offering Circular is hereby deleted and replaced with the following:

If you purchase a CMS rate note, your note will bear interest at a base rate equal to the CMS rate and adjusted by the spread or spread multiplier, if any, specified in your pricing supplement.

The CMS rate for the relevant interest reset date (the “CMS Rate”) will be the rate appearing on the Reuters screen ICESWAP1 page (or any successor or replacement service or

page) for U.S. dollar swaps having a maturity equal to the index maturity specified in the applicable pricing supplement as of approximately 11:00 A.M., New York City time, on the relevant CMS interest determination date.

If the calculation agent determines on the relevant CMS interest determination date that the CMS Rate has been discontinued, then the calculation agent will use a substitute or successor base rate that it has determined in its sole discretion is most comparable to the CMS Rate, provided that if the calculation agent determines there is an industry-accepted successor base rate, then the calculation agent shall use such successor base rate. If the calculation agent has determined a substitute or successor base rate in accordance with the foregoing, the calculation agent in its sole discretion may determine the business day convention, the definition of business day and the interest determination date to be used and any other relevant methodology for calculating such substitute or successor base rate, including any adjustment factor needed to make such substitute or successor base rate comparable to the CMS Rate, in a manner that is consistent with industry-accepted practices for such substitute or successor base rate.

If the rate described above does not so appear on the Reuters screen ICESWAP1 page (or any successor or replacement service or page), unless the calculation agent determines to use a substitute or successor base rate as provided in the preceding paragraph, the following will apply:

- The calculation agent, after consulting such sources as it deems comparable to the foregoing display page, or any such source it deems reasonable, shall determine the CMS Rate in its sole discretion.

We may specify in the applicable pricing supplement that the changes described in this Supplement shall not apply to your notes.

References to the Offering Circular in the Offering Circular shall hereafter mean the Offering Circular as supplemented by this Supplement.

The Goldman Sachs Group, Inc. has taken all reasonable care to ensure that the information contained in the Offering Circular, as supplemented by this Supplement, is, to the best of its knowledge, in accordance with the facts and contains no omission likely to affect its import and accepts responsibility accordingly.

This Supplement is not for use in, and may not be delivered to or inside, the United States.

Supplement, dated July 30, 2019