

GOLDMAN SACHS GROUP INC

Form FWP

May 03, 2019

Free Writing Prospectus pursuant to Rule 433 / Registration Statement No. 333-219206

GS Finance Corp.

\$

Trigger Callable Contingent Yield Notes due

guaranteed by

The Goldman Sachs Group, Inc.

The notes will not pay a fixed coupon and may pay no coupon on a coupon payment date. The amount that you will be paid on your notes is based on the performances of the S&P 500<sup>®</sup> Index, the Russell 2000<sup>®</sup> Index and the EURO STOXX 50<sup>®</sup> Index. Subject to our redemption right, the notes will mature on the stated maturity date set forth below. We may redeem your notes on any coupon payment date on or after August 7, 2019, regardless of the performance of the indices, at a price equal to the face amount of your notes plus any coupon then due.

Unless previously redeemed, if the closing level of each index is greater than or equal to 70.00% of its initial index level (set on the trade date) on every trading day during the preceding quarterly observation period, you will receive on the applicable coupon payment date a coupon of between \$0.25625 and \$0.2625 (set on the trade date) for each \$10 face amount of your notes. A quarterly observation period is the period from but excluding an observation end date (or the trade date, in the case of the first period) to and including the next succeeding observation end date. Coupon payment dates are expected to be the dates specified on page S-6 of this document. If the closing level of any index on any trading day during the preceding quarterly observation period is less than 70.00% of its initial index level, you will not receive a coupon payment on the applicable coupon payment date.

Unless previously redeemed, the amount that you will be paid on your notes at maturity, in addition to the final coupon, if any, is based on the performance of the lesser performing index (the index with the lowest index return). The index return for each index is the percentage increase or decrease in the final index level of such index on the final observation end date from its initial index level.

At maturity, for each \$10 face amount of your notes outstanding, you will receive, in addition to any coupon payment then due, an amount in cash equal to:

- if the final index level of each index is greater than or equal to 60.00% of its initial index level, \$10; or

- if the final index level of any index is less than 60.00% of its initial index level, the sum of (i) \$10 plus (ii) the product of (a) the lesser performing index return times (b) \$10. You will receive less than 60.00% of the face amount of your notes and you will not receive a final coupon.

The maximum return on your notes is expected to be between 2.5625% and 2.625% quarterly (or between 10.25% and 10.50% per annum). You will not receive more than the face amount of your notes at maturity plus the final coupon, if any. If the final index level of any index has declined by more than 40.00% from the initial index level of such index, regardless of the performance of the other two indices, you will receive less than the face amount of your notes. At maturity you could receive significantly less than the face amount of your notes.

## SUMMARY TERMS (continued on page S-2)

Index/Initial index level:	S&P 500 <sup>®</sup> Index / the closing level of such index on the trade date	Trade date:	expected to be May 3, 2019
Index/Initial index level:	Russell 2000 <sup>®</sup> Index / the closing level of such index on the trade date	Original issue date:	expected to be May 8, 2019
Index/Initial index level:	EURO STOXX 50 <sup>®</sup> Index / the closing level of such index on the trade date	Stated maturity date:	unless the notes are previously redeemed, expected to be November 8, 2022
Downside threshold:	60.00% of initial index level	Original issue price:	100% of face amount
Coupon barrier:	70.00% of initial index level	Net proceeds to issuer:	98.75% of face amount
Contingent coupon:	expected to be between \$0.25625 and \$0.2625/quarter (between 10.25% and 10.50% p.a.)	Underwriting discount:	2.5% of face amount*

CUSIP / ISIN: 36257D667 / US36257D6673

\*UBS Financial Services Inc., the selling agent, will receive a selling concession not in excess of 1.00% of the face amount.

You should read the disclosure herein to better understand the terms and risks of your investment, including the credit risk of GS Finance Corp. and The Goldman Sachs Group, Inc. See page S-13.

The estimated value of your notes at the time the terms of your notes are set on the trade date is expected to be between \$9.55 and \$9.85 per \$10 face amount. For a discussion of the estimated value and the price at which Goldman Sachs & Co. LLC would initially buy or sell your notes, if it makes a market in the notes, see the following page.

Neither the Securities and Exchange Commission nor any other regulatory body has approved or disapproved of these securities or passed upon the accuracy or adequacy of this document. Any representation to the contrary is a criminal offense. The notes are not bank deposits and are not insured by the Federal Deposit Insurance Corporation or any other governmental agency, nor are they obligations of, or guaranteed by, a bank.

Goldman Sachs &amp; Co. LLC

UBS Financial Services  
Inc.  
Selling Agent

May 3, 2019

The issue price, underwriting discount and net proceeds listed above relate to the notes we sell initially. We may decide to sell additional notes after the date of this document, at issue prices and with underwriting discounts and net proceeds that differ from the amounts set forth above. The return (whether positive or negative) on your investment in notes will depend in part on the issue price you pay for such notes.

GS Finance Corp. may use this document in the initial sale of the notes. In addition, Goldman Sachs & Co. LLC, or any other affiliate of GS Finance Corp., may use this document in a market-making transaction in a note after its initial sale. Unless GS Finance Corp. or its agent informs the purchaser otherwise in the confirmation of sale, this document is being used in a market-making transaction.

#### Estimated Value of Your Notes

The estimated value of your notes at the time the terms of your notes are set on the trade date (as determined by reference to pricing models used by Goldman Sachs & Co. LLC (GS&Co.) and taking into account our credit spreads) is expected to be between \$9.55 and \$9.85 per \$10 face amount, which is less than the original issue price. The value of your notes at any time will reflect many factors and cannot be predicted; however, the price (not including GS&Co.'s customary bid and ask spreads) at which GS&Co. would initially buy or sell notes (if it makes a market, which it is not obligated to do) and the value that GS&Co. will initially use for account statements and otherwise is equal to approximately the estimated value of your notes at the time of pricing, plus an additional amount (initially equal to \$ per \$10 face amount).

Prior to , the price (not including GS&Co.'s customary bid and ask spreads) at which GS&Co. would buy or sell your notes (if it makes a market, which it is not obligated to do) will equal approximately the sum of (a) the then-current estimated value of your notes (as determined by reference to GS&Co.'s pricing models) plus (b) any remaining additional amount (the additional amount will decline to zero on a straight-line basis over a 94 day period from the time of pricing). On and after , the price (not including GS&Co.'s customary bid and ask spreads) at which GS&Co. would buy or sell your notes (if it makes a market) will equal approximately the then-current estimated value of your notes determined by reference to such pricing models.

#### ADDITIONAL SUMMARY TERMS

Issuer:	GS Finance Corp.
Guarantor:	The Goldman Sachs Group, Inc.
Early redemption right:	we have the right to redeem your notes at our option, in whole but not in part, on each coupon payment date on or after August 7, 2019 at a price equal to 100% of the face amount plus any coupon then due, subject to at least two business days' prior notice
Cash settlement amount (in addition to any coupon payment then due):	•if the final index level of the lesser performing index is greater than or equal to its downside threshold, \$10; or •if the final index level of the lesser performing index is less than its downside threshold, the sum of (1) \$10 plus (2) the product of (i) \$10 times (ii) the lesser performing index return
Determination date:	expected to be November 3, 2022
Final index level:	with respect to each index, the closing level of such index on the determination date, except in the limited circumstances described under "Specific Terms of Your Notes — Consequences of a Market Disruption Event or a Non-Trading Day" on page S-29
Closing level:	with respect to each index on any trading day, the closing level of such index as further described under "Specific Terms of Your Notes — Special Calculation Provisions — Closing Level" on page S-32

Quarterly observation period:	the period from but excluding each observation end date (or the trade date, in the case of the first quarterly observation period) to and including the next succeeding observation end date excluding any date or dates on which the calculation agent determines that a market disruption event with respect to any index occurs or is continuing or that the calculation agent determines is not a trading day with respect to any index, as further described under “Specific Terms of Your Notes — Payment of a Contingent Coupon — Quarterly Observation Periods” on page S-27. Although the quarterly observation periods occur quarterly, there may not be an equal number of trading days in each quarterly observation period
Index return:	with respect to each index on the determination date, the quotient of (i) the final index level minus the initial index level divided by (ii) the initial index level, expressed as a positive or negative percentage
Lesser performing index:	the index with the lowest index return
Lesser performing index return:	the index return of the lesser performing index
Face amount:	\$10 per note
Original issue price:	100% of the face amount
No listing:	the offered notes will not be listed or displayed on any securities exchange or interdealer market quotation system

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Observation End Dates\* Coupon Payment Dates\*\*

August 5, 2019	August 7, 2019
November 4, 2019	November 6, 2019
February 3, 2020	February 5, 2020
May 4, 2020	May 6, 2020
August 3, 2020	August 5, 2020
November 3, 2020	November 5, 2020
February 3, 2021	February 5, 2021
May 3, 2021	May 5, 2021
August 3, 2021	August 5, 2021
November 3, 2021	November 5, 2021
February 3, 2022	February 7, 2022
May 3, 2022	May 5, 2022
August 3, 2022	August 5, 2022
November 3, 2022	November 8, 2022

\*Subject to adjustment as described under “Specific Terms of Your Notes — Observation End Dates” on page S-29 of this document

\*\*Subject to adjustment as described under “Specific Terms of Your Notes — Coupon and Coupon Payment Dates” on page S-28 of this document

This is the first date on which your notes may be redeemed.

#### About Your Notes

GS Finance Corp. and The Goldman Sachs Group, Inc. have filed a registration statement (including a prospectus, as supplemented by the prospectus supplement listed below) with the Securities and Exchange Commission (SEC) for the offering to which this communication relates. Before you invest, you should read the prospectus, prospectus supplement and any other documents relating to this offering that GS Finance Corp. and The Goldman Sachs Group, Inc. have filed with the SEC for more complete information about us and this offering. You may get these documents without cost by visiting EDGAR on the SEC web site at sec.gov. Alternatively, we will arrange to send you the prospectus and prospectus supplement if you so request by calling (212) 357-4612.

The notes are part of the Medium-Term Notes, Series E program of GS Finance Corp. and are fully and unconditionally guaranteed by The Goldman Sachs Group, Inc. This document should be read in conjunction with the following:

Prospectus supplement dated July 10, 2017

Prospectus dated July 10, 2017

The information in this document supersedes any conflicting information in the documents listed above. In addition, some of the terms or features described in the listed documents may not apply to your notes.

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### Summary Information

We refer to the notes we are offering by this document as the “offered notes” or the “notes”. Each of the offered notes has the terms described below and under “Specific Terms of Your Notes” on page S-26. Please note that in this document, references to “GS Finance Corp.”, “we”, “our” and “us” mean only GS Finance Corp. and do not include its subsidiaries or affiliates, references to “The Goldman Sachs Group, Inc.”, our parent company, mean only The Goldman Sachs Group, Inc. and do not include its subsidiaries or affiliates and references to “Goldman Sachs” mean The Goldman Sachs Group, Inc. together with its consolidated subsidiaries and affiliates, including us. Also, references to the “accompanying prospectus” mean the accompanying prospectus, dated July 10, 2017, and references to the “accompanying prospectus supplement” mean the accompanying prospectus supplement, dated July 10, 2017, for Medium-Term Notes, Series E, in each case of GS Finance Corp. and The Goldman Sachs Group, Inc. References to the “indenture” in this document mean the senior debt indenture, dated as of October 10, 2008, as supplemented by the First Supplemental Indenture, dated as of February 20, 2015, each among us, as issuer, The Goldman Sachs Group, Inc., as guarantor, and The Bank of New York Mellon, as trustee. This indenture, as so supplemented and as further supplemented thereafter, is referred to as the “GSFC 2008 indenture” in the accompanying prospectus supplement.

### Key Terms

Issuer: GS Finance Corp.

Guarantor: The Goldman Sachs Group, Inc.

Indices: the S&P 500<sup>®</sup> Index (Bloomberg symbol, “SPX Index”), as published by S&P Dow Jones Indices LLC, the Russell 2000<sup>®</sup> Index (Bloomberg symbol, “RTY Index”), as published by FTSE Russell, and the EURO STOXX 50 Index (Bloomberg symbol, “SX5E Index”), as sponsored and maintained by STOXX Limited; see “The Indices” on page S-36

Specified currency: U.S. dollars (“\$”)

Face amount: each note will have a face amount equal to \$10 and integral multiples of \$10 in excess thereof; \$ in the aggregate for all the offered notes; the aggregate face amount of the offered notes may be increased if the issuer, at its sole option, decides to sell an additional amount of the offered notes on a date subsequent to the date of this document

Denominations: \$10 and integral multiples of \$10 in excess thereof

Minimum purchase amount: In connection with the initial offering of the notes, the minimum face amount of notes that may be purchased by any investor is \$1,000

Supplemental plan of distribution: GS Finance Corp. expects to agree to sell to Goldman Sachs & Co. LLC (“GS&Co.”), and GS&Co. expects to agree to purchase from GS Finance Corp., the aggregate face amount of the offered notes specified on the front cover of this document. GS&Co. proposes initially to offer the notes to the public at the original issue price set forth on the cover page of this document, and to UBS Financial Services Inc. at such price less a concession not in excess of 1.00% of the face amount. See “Supplemental Plan of Distribution” on page S-64

Purchase at amount other than face amount: the amount we will pay you for your notes on the stated maturity date or upon any early redemption of your notes will not be adjusted based on the issue price you pay for your notes, so if you acquire notes at a premium (or discount) to face amount and hold them to the stated maturity date or date of early redemption, it could affect your investment in a number of ways. The return on your investment in such notes will be lower (or higher) than it would have been had you purchased the notes at face amount. See “Additional Risk Factors

Specific to Your Notes — If You Purchase Your Notes at a Premium to Face Amount, the Return on Your Investment Will Be Lower Than the Return on Notes Purchased at Face Amount and the Impact of Certain Key Terms of the Notes Will Be Negatively Affected” on page S-18 of this document

Supplemental discussion of U.S. federal income tax consequences: you will be obligated pursuant to the terms of the notes — in the absence of a change in law, an administrative determination or a judicial ruling to the contrary — to characterize each note for all tax purposes as an income-bearing pre-paid

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derivative contract in respect of the indices, as described under “Supplemental Discussion of Federal Income Tax Consequences” herein. Pursuant to this approach, it is the opinion of Sidley Austin LLP that it is likely that any coupon payment will be taxed as ordinary income in accordance with your regular method of accounting for U.S. federal income tax purposes. If you are a United States alien holder of the notes, we intend to withhold on coupon payments made to you at a 30% rate or at a lower rate specified by an applicable income tax treaty. In addition, upon the sale, exchange, redemption or maturity of your notes, it would be reasonable for you to recognize capital gain or loss equal to the difference, if any, between the amount of cash you receive at such time (excluding amounts attributable to any coupon payment) and your tax basis in your notes.

Cash settlement amount (on the stated maturity date): subject to our early redemption right, for each \$10 face amount of your notes, we will pay you on the stated maturity date, in addition to any coupon payment then due, an amount in cash equal to:

• if the final index level of the lesser performing index is greater than or equal to its downside threshold, \$10; or  
• if the final index level of the lesser performing index is less than its downside threshold, the sum of (1) \$10 plus (2) the product of (i) \$10 times (ii) the lesser performing index return  
Downside threshold: with respect to each index, 60.00% of its initial index level (rounded to the nearest one-thousandth)

Early redemption right: we have the right to redeem your notes at our option, in whole but not in part, on each coupon payment date or after August 7, 2019 at a price equal to 100% of the face amount plus any coupon then due, subject to at least two business days’ prior notice

Lesser performing index return: the index return of the lesser performing index

Lesser performing index: the index with the lowest index return

Coupon (to be set on the trade date): subject to our early redemption right, on each coupon payment date, for each \$10 face amount of your notes, we will pay you an amount in cash equal to:

• if the closing level of each index on every trading day during the preceding quarterly observation period is greater than or equal to its coupon barrier, between \$0.25625 and \$0.2625 (between 2.5625% and 2.625% quarterly or between 10.25% and 10.50% per annum); or  
• if the closing level of any index on any trading day during the preceding quarterly observation period is less than its coupon barrier, \$0.00

No coupon payment or return of principal is guaranteed. As discussed above, we will not pay a coupon on a coupon payment date if the closing level of any index is less than its coupon barrier on any trading day during the preceding quarterly observation period. Also, although quarterly observation periods and coupon payment dates occur quarterly, there may not be an equal number of trading days in each quarterly observation period and there may not be an equal number of days between coupon payment dates. However, the way in which the coupon is determined will not vary based on the actual number of trading days in any quarterly observation period or the actual number of days between coupon payment dates.

Quarterly observation period: the period from but excluding each observation end date (or the trade date, in the case of the first quarterly observation period) to and including the next succeeding observation end date excluding any date or dates on which the calculation agent determines that a market disruption event with respect to any index occurs or is continuing or that the calculation agent determines is not a trading day with respect to any index, as further described under “Specific Terms of Your Notes — Payment of a Contingent Coupon — Quarterly Observation Periods” on page S-27. Although the quarterly observation periods occur quarterly, there may not be an equal number of trading days in each quarterly observation period.

Coupon barrier: with respect to each index, 70.00% of its initial index level (rounded to the nearest one-thousandth)

Initial index level (to be set on the trade date): with respect to each index, the closing level of such index on the trade date

Final index level: with respect to each index, the closing level of such index on the determination date, except in the limited circumstances described under “Specific Terms of Your Notes — Consequences of a Market Disruption Event or a Non-Trading Day” on page S-29

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Closing level: with respect to each index on any trading day, the closing level of such index, as further described under “Specific Terms of Your Notes — Special Calculation Provisions — Closing Level” on page S-32

Index return: with respect to each index on the determination date, the quotient of (i) the final index level minus the initial index level divided by (ii) the initial index level, expressed as a positive or negative percentage

Defeasance: not applicable

No listing: the offered notes will not be listed or displayed on any securities exchange or interdealer market quotation system

Business day: as described under “Specific Terms of Your Notes — Special Calculation Provisions — Business Day” on page S-31

Trading day: as described under “Specific Terms of Your Notes — Special Calculation Provisions — Trading Day” on page S-31

Trade date: expected to be May 3, 2019

Original issue date (settlement date) (to be set on the trade date): expected to be May 8, 2019

Determination date (to be set on the trade date): expected to be November 3, 2022, subject to adjustment as described under “Specific Terms of Your Notes — Determination Date” on page S-28

Stated maturity date (to be set on the trade date): expected to be November 8, 2022, subject to our redemption right and to adjustment as described under “Specific Terms of Your Notes — Stated Maturity Date” on page S-28

Observation end dates (to be set on the trade date): expected to be the dates specified as such in the table under “Coupon payment dates” below, subject to adjustment as described under “Specific Terms of Your Notes — Observation End Dates” on page S-29. Although the observation end dates occur quarterly, there may not be an equal number of days between observation end dates.

Coupon payment dates (to be set on the trade date): expected to be the dates specified in the table below, subject to adjustment as described under “Specific Terms of Your Notes — Coupon and Coupon Payment Dates” on page S-28. Although the coupon payment dates occur quarterly, there may not be an equal number of days between coupon payment dates.

[REDACTED]	
August 5, 2019	August 7, 2019
November 4, 2019	November 6, 2019
February 3, 2020	February 5, 2020
May 4, 2020	May 6, 2020
August 3, 2020	August 5, 2020
November 3, 2020	November 5, 2020
February 3, 2021	February 5, 2021
May 3, 2021	May 5, 2021
August 3, 2021	August 5, 2021
November 3, 2021	November 5, 2021
February 3, 2022	February 7, 2022
May 3, 2022	May 5, 2022
August 3, 2022	August 5, 2022

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November 3, 2022      November 8, 2022

This is the first date on which your notes may be redeemed.

Regular record dates: the scheduled business day immediately preceding the day on which payment is to be made (as such payment date may be adjusted)

Calculation agent: GS&Co.

CUSIP no.: 36257D667

ISIN no.: US36257D6673

FDIC: the notes are not bank deposits and are not insured by the Federal Deposit Insurance Corporation or any other governmental agency, nor are they obligations of, or guaranteed by, a bank

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## Hypothetical ExampleS

(Hypothetical terms only. Actual terms may vary.)

The following examples are provided for purposes of illustration only. They should not be taken as an indication or prediction of future investment results and are intended merely to illustrate (i) the impact that various hypothetical closing levels of the indices during a quarterly observation period could have on the coupon payable, if any, on the related coupon payment date and (ii) the impact that the various hypothetical closing levels of the lesser performing index on the determination date could have on the cash settlement amount at maturity assuming all other variables remain constant.

The examples below are based on a range of index levels of the lesser performing index that are entirely hypothetical; no one can predict what the index level of any index will be on any day throughout the life of your notes, what the closing level of any index will be on any trading day during any quarterly observation period and what the final index level of the lesser performing index will be on the determination date. The indices have been highly volatile in the past — meaning that the index levels have changed substantially in relatively short periods — and their performance cannot be predicted for any future period.

The information in the following examples reflects the hypothetical rates of return on the offered notes assuming that they are purchased on the original issue date at the face amount and held to the stated maturity date or date of early redemption. If you sell your notes in a secondary market prior to the stated maturity date, your return will depend upon the market value of your notes at the time of sale, which may be affected by a number of factors that are not reflected in the examples below such as interest rates, the volatility of the indices, the creditworthiness of GS Finance Corp., as issuer, and the creditworthiness of The Goldman Sachs Group, Inc., as guarantor. In addition, the estimated value of your notes at the time the terms of your notes are set on the trade date (as determined by reference to pricing models used by GS&Co.) is less than the original issue price of your notes. For more information on the estimated value of your notes, see “Additional Risk Factors Specific to Your Notes — The Estimated Value of Your Notes At the Time the Terms of Your Notes Are Set On the Trade Date (as Determined By Reference to Pricing Models Used By GS&Co.) Is Less Than the Original Issue Price Of Your Notes” on page S-13 of this document. The information in the examples also reflect the key terms and assumptions in the box below.

## Key Terms and Assumptions

Face amount \$10

Hypothetical initial

index level of the S&P

500<sup>®</sup> Index 2,900

Hypothetical initial

index level of the Russell

2000<sup>®</sup> Index 1,500

Hypothetical initial

index level of the EURO

STOXX 50<sup>®</sup> Index 3,500

Downside threshold

with respect to each index, 60.00% of its initial index level, rounded to the nearest one-thousandth (based on the hypothetical initial index levels above, the downside threshold equals 1,740.000 in the case of the S&P 500<sup>®</sup> Index, 900.000 in the case of the Russell 2000<sup>®</sup> Index and 2,100.000 in the case of the EURO STOXX 50<sup>®</sup> Index)

Coupon barrier with respect to each index, 70.00% of its initial index level, rounded to the nearest one-thousandth (based on the hypothetical initial index levels above, the coupon barrier equals 2,030.000 in the case of the S&P 500<sup>®</sup> Index, 1,050.000 in the case of the Russell 2000<sup>®</sup> Index and 2,450.000 in the case of the EURO STOXX 50<sup>®</sup> Index)

Coupon \$0.25625 (2.5625% quarterly or 10.25% per annum)

Neither a market disruption event nor a non-trading day occurs during any quarterly observation period or on the originally scheduled determination date

No change in or affecting any of the index stocks or the method by which the applicable index sponsor calculates any index

Notes purchased on original issue date at the face amount and held to the stated maturity date

Moreover, we have not yet set the initial index levels that will serve as the baseline for determining the coupon payable on each coupon payment date, if any, the index returns and the amount that we will pay

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on your notes, if any, at maturity, subject to our early redemption right. We will not do so until the trade date. As a result, the actual initial index levels may differ substantially from the index levels prior to the trade date. They may also differ substantially from the index levels at the time you purchase your notes.

For these reasons, the actual performance of the indices over the life of your notes, the actual index levels on any trading day during a quarterly observation period, as well as the coupon payable, if any, on each coupon payment date, may bear little relation to the hypothetical examples shown below or to the historical index levels shown elsewhere in this document. For information about the index levels during recent periods, see “The Indices — Historical Closing Levels of the Indices” on page S-55. Before investing in the notes, you should consult publicly available information to determine the index levels between the date of this document and the date of your purchase of the notes.

Also, the hypothetical examples shown below do not take into account the effects of applicable taxes. Because of the U.S. tax treatment applicable to your notes, tax liabilities could affect the after-tax rate of return on your notes to a comparatively greater extent than the after-tax return on the index stocks.

### Hypothetical Coupon Payments

With respect to each \$10 face amount of notes, the examples below show hypothetical coupons, if any, that we would pay on a coupon payment date if the lowest closing levels of the indices during the applicable quarterly observation period were the hypothetical closing levels shown.

#### Scenario 1

First	2,500	650	3,200	\$0.0000
Second	1,700	600	2,000	\$0.0000
Third	2,050	1,200	3,600	\$0.25625
Fourth	1,000	1,100	3,000	\$0.0000
Fifth	2,100	1,200	2,900	\$0.25625
Sixth	1,700	625	2,800	\$0.0000
Seventh	2,200	1,800	3,000	\$0.25625
Eighth	1,300	700	1,700	\$0.0000
Ninth	2,400	500	2,000	\$0.0000
Tenth	1,200	650	3,400	\$0.0000
Eleventh	2,000	1,500	1,700	\$0.0000
Twelfth - Fourteenth	1,200	1,380	3,100	\$0.0000
			Total Hypothetical Coupons Paid	\$0.76875

In Scenario 1, we do not exercise our early redemption right and the lowest hypothetical closing level of each index fluctuates compared to its hypothetical initial index level during the applicable quarterly observation period. Because the lowest hypothetical closing level of each index during the third, fifth and seventh hypothetical quarterly

observation periods is greater than or equal to its hypothetical coupon barrier, coupons are paid on the three related coupon payment dates and the total of the hypothetical coupons paid in Scenario 1 is \$0.76875. Because the lowest hypothetical closing level of at least one of the indices during the fourteenth hypothetical quarterly observation period is less than its hypothetical coupon barrier, no coupon will be paid at maturity. In addition, no coupon will be paid on any other coupon payment date relating to a quarterly observation period where the hypothetical closing level of any index on any trading day in such quarterly observation period is less than its hypothetical coupon barrier. The overall return on your notes may be zero or less.

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## Scenario 2

First	1,100	1,400	3,700	\$0.0000
Second	1,050	1,200	2,700	\$0.0000
Third	1,000	1,500	2,750	\$0.0000
Fourth	1,100	1,200	2,800	\$0.0000
Fifth	1,050	1,200	2,650	\$0.0000
Sixth	1,000	1,200	2,700	\$0.0000
Seventh	1,000	1,300	2,800	\$0.0000
Eighth	1,100	1,200	2,650	\$0.0000
Ninth	950	1,800	2,900	\$0.0000
Tenth	1,000	1,300	2,750	\$0.0000
Eleventh	1,500	1,500	2,800	\$0.0000
Twelfth - Fourteenth	1,200	1,380	3,100	\$0.0000
			Total Hypothetical Coupons Paid	\$0.0000

In Scenario 2, we do not exercise our early redemption right and the lowest hypothetical closing level of the S&P 500<sup>®</sup> Index is less than its hypothetical initial index level during each hypothetical quarterly observation period and the lowest hypothetical closing level of each of the Russell 2000<sup>®</sup> Index and the EURO STOXX 50<sup>®</sup> Index fluctuates above and below its hypothetical initial index level during the hypothetical quarterly observation periods. Because in each case the lowest hypothetical closing level of the S&P 500<sup>®</sup> Index during each of the quarterly observation periods is less than its hypothetical coupon barrier, you will not receive a coupon payment on any hypothetical coupon payment date, even though the lowest hypothetical closing level of each of the Russell 2000<sup>®</sup> Index and the EURO STOXX 50<sup>®</sup> Index is above its hypothetical coupon barrier during each hypothetical quarterly observation period. Therefore, the total of the hypothetical coupons paid in Scenario 2 is \$0.0000. The overall return on your notes may be zero or less.

## Scenario 3

First	3,000	1,900	3,800	\$0.25625
			Total Hypothetical Coupons Paid	\$0.25625

In Scenario 3, the lowest hypothetical closing level of each index during the first hypothetical quarterly observation period is greater than or equal to its hypothetical coupon barrier. In addition, we exercise our early redemption right with respect to the first hypothetical coupon payment date (which is also the first hypothetical date with respect to

which we could exercise such right). Therefore, on such hypothetical

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coupon payment date, in addition to the hypothetical coupon of \$0.25625, you will receive an amount in cash equal to \$10 for each \$10 face amount of your notes and your notes will be redeemed.

#### Hypothetical Cash Settlement Amount at Maturity

If we have not redeemed the notes early, the cash settlement amount we would deliver for each \$10 face amount of your notes on the stated maturity date will depend on the performance of the lesser performing index on the determination date, as shown in the table below. The table below assumes that we have not redeemed the notes early and reflects hypothetical cash settlement amounts that you could receive on the stated maturity date.

The levels in the left column of the table below represent hypothetical final index levels of the lesser performing index and are expressed as percentages of the initial index level of the lesser performing index. The amounts in the right column represent the hypothetical cash settlement amounts, based on the corresponding hypothetical final index level of the lesser performing index (expressed as a percentage of the initial index level of the lesser performing index), and are expressed as percentages of the face amount of a note (rounded to the nearest one-thousandth of a percent). Thus, a hypothetical cash settlement amount of 100.000% means that the value of the cash payment that we would deliver for each \$10 of the outstanding face amount of the offered notes on the stated maturity date would equal 100.000% of the face amount of a note, based on the corresponding hypothetical final index level of the lesser performing index (expressed as a percentage of the initial index level of the lesser performing index) and the assumptions noted above.

#### We Have Not Redeemed the Notes Early

Hypothetical Final Index Level of the Lesser Performing Index (as Percentage of Initial Index Level)	Hypothetical Cash Settlement Amount at Maturity if We Have Not Redeemed the Notes Early* (as Percentage of Face Amount)
175.000%	100.000%
150.000%	100.000%
125.000%	100.000%
100.000%	100.000%
90.000%	100.000%
80.000%	100.000%
70.000%	100.000%
60.000%	100.000%
59.999%	59.999%
50.000%	50.000%
45.000%	45.000%
25.000%	25.000%
10.000%	10.000%
0.000%	0.000%

\*Does not include the final coupon, if any

If, for example, we have not redeemed the notes early and the final index level of the lesser performing index were determined to be 25.000% of its initial index level, the cash settlement amount that we would deliver on your notes at maturity would be 25.000% of the face amount of your notes, as shown in the table above. As a result, if you purchased your notes on the original issue date at the face amount and held them to the stated maturity date, you would lose 75.000% of your investment excluding any coupons you may have received over the term of the notes (if you purchased your notes at a premium to face amount you would lose a correspondingly higher percentage of your investment). In addition, if the final index level of the lesser performing index were determined to be 80.000% of its initial index level, the cash settlement amount that we would deliver on your notes at maturity would be 100.000% of the face amount of your notes, as shown in the table above. Because the final index level of the lesser performing index is greater than or equal to its downside threshold, if you held your notes to the stated maturity date, you would receive \$10 for each \$10 face amount of your notes. Alternatively, if the final index level of the lesser performing index were determined to be 175.000% of its initial index level, the cash settlement amount that we would deliver on your notes at maturity would be limited to 100.000% of each \$10 face

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amount of your notes, as shown in the table above. As a result, if you held your notes to the stated maturity date, you would not benefit from any increase in the final index level over the initial index level.

The cash settlement amounts shown above are entirely hypothetical; they are based on market prices for the index stocks that may not be achieved on the determination date and on assumptions that may prove to be erroneous. The actual market value of your notes on the stated maturity date or at any other time, including any time you may wish to sell your notes, may bear little relation to the hypothetical cash settlement amounts shown above, and these amounts should not be viewed as an indication of the financial return on an investment in the offered notes. The hypothetical cash settlement amounts on notes held to the stated maturity date in the examples above assume you purchased your notes at their face amount and have not been adjusted to reflect the actual issue price you pay for your notes. The return on your investment (whether positive or negative) in your notes will be affected by the amount you pay for your notes. If you purchase your notes for a price other than the face amount, the return on your investment will differ from, and may be significantly lower than, the hypothetical returns suggested by the above examples. Please read “Additional Risk Factors Specific to Your Notes — The Market Value of Your Notes May Be Influenced by Many Unpredictable Factors” on page S-18.

Payments on the notes are economically equivalent to the amounts that would be paid on a combination of other instruments. For example, payments on the notes are economically equivalent to a combination of a bond bought by the holder and one or more options entered into between the holder and us. Therefore, the terms of the notes may be impacted by the various factors mentioned under “Additional Risk Factors Specific to Your Notes — The Market Value of Your Notes May Be Influenced by Many Unpredictable Factors” on page S-18. The discussion in this paragraph does not modify or affect the terms of the notes or the U.S. federal income tax treatment of the notes, as described elsewhere in this document.

We cannot predict the actual closing levels of the indices on any day, the final index levels of the indices or what the market value of your notes will be on any particular trading day, nor can we predict the relationship between the closing levels of the indices and the market value of your notes at any time prior to the stated maturity date. The actual coupon payment, if any, that you, as a holder of the notes, will receive on each coupon payment date, the actual amount that you will receive at maturity, if any, and the rate of return on the offered notes will depend on whether or not the notes are redeemed, the actual initial index levels and coupon, which we will set on the trade date, and the actual closing levels of the indices and the actual final index levels determined by the calculation agent as described above. Moreover, the assumptions on which the hypothetical examples are based may turn out to be inaccurate. Consequently, the coupon to be paid in respect of your notes, if any, and the cash amount to be paid in respect of your notes on the stated maturity date, if any, may be very different from the information reflected in the examples above.

#### Additional Risk Factors Specific to Your Notes

An investment in your notes is subject to the risks described below, as well as the risks and considerations described in the accompanying prospectus and in the accompanying prospectus supplement. You should carefully review these risks and considerations as well as the terms of the notes described herein and in the accompanying prospectus and the accompanying prospectus supplement. Your notes are a riskier investment than ordinary debt securities. Also, your notes are not equivalent to investing directly in the index stocks, i.e., with respect to an index to which your notes are linked, the stocks comprising such index. You should carefully consider whether the offered notes are suited to your particular circumstances.

#### The Estimated Value of Your Notes At the Time the Terms of Your Notes Are Set On the Trade Date (as Determined By Reference to Pricing Models Used By GS&Co.) Is Less Than the Original Issue Price Of Your Notes

The original issue price for your notes exceeds the estimated value of your notes as of the time the terms of your notes are set on the trade date, as determined by reference to GS&Co.'s pricing models and taking into account our credit spreads. Such estimated value on the trade date is set forth above under "Estimated Value of Your Notes"; after the trade date, the estimated value as determined by reference to these models will be affected by changes in market conditions, the creditworthiness of GS Finance Corp., as issuer, the creditworthiness of The Goldman Sachs Group, Inc., as guarantor, and other relevant factors. The price at which GS&Co. would initially buy or sell your notes (if GS&Co. makes a market, which it is not obligated to do), and the value that GS&Co. will initially use for account statements and otherwise, also exceeds the estimated value of your notes as determined by reference to these models. As agreed by GS&Co. and the distribution participants, this excess (i.e., the additional amount described under "Estimated Value of Your Notes") will decline to zero on a straight line basis over the period set forth above under "Estimated Value of Your Notes". Thereafter, if GS&Co. buys or sells your notes it will do so at prices that reflect the estimated value determined by reference to such pricing models at that time. The price at which GS&Co. will buy or sell your notes at any time also will reflect its then current bid and ask spread for similar sized trades of structured notes.

In estimating the value of your notes as of the time the terms of your notes are set on the trade date, as disclosed above under "Estimated Value of Your Notes", GS&Co.'s pricing models consider certain variables, including principally our credit spreads, interest rates (forecasted, current and historical rates), volatility, price-sensitivity analysis and the time to maturity of the notes. These pricing models are proprietary and rely in part on certain assumptions about future events, which may prove to be incorrect. As a result, the actual value you would receive if you sold your notes in the secondary market, if any, to others may differ, perhaps materially, from the estimated value of your notes determined by reference to our models due to, among other things, any differences in pricing models or assumptions used by others. See "— The Market Value of Your Notes May Be Influenced by Many Unpredictable Factors" below.

The difference between the estimated value of your notes as of the time the terms of your notes are set on the trade date and the original issue price is a result of certain factors, including principally the underwriting discount and commissions, the expenses incurred in creating, documenting and marketing the notes, and an estimate of the difference between the amounts we pay to GS&Co. and the amounts GS&Co. pays to us in connection with your notes. We pay to GS&Co. amounts based on what we would pay to holders of a non-structured note with a similar maturity. In return for such payment, GS&Co. pays to us the amounts we owe under your notes.

In addition to the factors discussed above, the value and quoted price of your notes at any time will reflect many factors and cannot be predicted. If GS&Co. makes a market in the notes, the price quoted by GS&Co. would reflect any changes in market conditions and other relevant factors, including any deterioration in our creditworthiness or perceived creditworthiness or the creditworthiness or perceived creditworthiness of The Goldman Sachs Group, Inc. These changes may adversely affect the value of your notes, including the price you may receive for your notes in any

market making transaction. To the extent that GS&Co. makes a market in the notes, the quoted price will reflect the estimated value

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determined by reference to GS&Co.'s pricing models at that time, plus or minus its then current bid and ask spread for similar sized trades of structured notes (and subject to the declining excess amount described above).

Furthermore, if you sell your notes, you will likely be charged a commission for secondary market transactions, or the price will likely reflect a dealer discount. This commission or discount will further reduce the proceeds you would receive for your notes in a secondary market sale.

There is no assurance that GS&Co. or any other party will be willing to purchase your notes at any price and, in this regard, GS&Co. is not obligated to make a market in the notes. See “— Your Notes May Not Have an Active Trading Market” below.

#### The Notes Are Subject to the Credit Risk of the Issuer and the Guarantor

Although the coupons (if any) and return on the notes will be based on the performance of each index, the payment of any amount due on the notes is subject to the credit risk of GS Finance Corp., as issuer of the notes, and the credit risk of The Goldman Sachs Group, Inc., as guarantor of the notes. The notes are our unsecured obligations. Investors are dependent on our ability to pay all amounts due on the notes, and therefore investors are subject to our credit risk and to changes in the market's view of our creditworthiness. Similarly, investors are dependent on the ability of The Goldman Sachs Group, Inc., as guarantor of the notes, to pay all amounts due on the notes, and therefore are also subject to its credit risk and to changes in the market's view of its creditworthiness. See “Description of the Notes We May Offer — Information About Our Medium-Term Notes, Series E Program — How the Notes Rank Against Other Debt” on page S-4 of the accompanying prospectus supplement and “Description of Debt Securities We May Offer— Guarantee by The Goldman Sachs Group, Inc.” on page 42 of the accompanying prospectus.

#### You May Lose Your Entire Investment in the Notes

You can lose your entire investment in the notes. Assuming we do not redeem your notes early, the cash settlement amount on your notes, if any, on the stated maturity date will be based on the performance of the lesser performing of the S&P 500<sup>®</sup> Index, the Russell 2000<sup>®</sup> Index and the EURO STOXX 50<sup>®</sup> Index as measured from their initial index levels set on the trade date to their closing levels on the determination date. If the final index level of the lesser performing index for your notes is less than its downside threshold, you will have a loss for each \$10 of the face amount of your notes equal to the product of the lesser performing index return times \$10. Thus, you may lose your entire investment in the notes, which would include any premium to face amount you paid when you purchased the notes.

Also, the application of the downside threshold applies only at maturity and the market price of your notes prior to the stated maturity date may be significantly lower than the purchase price you pay for your notes. Consequently, if you sell your notes before the stated maturity date, you may receive far less than the amount of your investment in the notes.

#### The Return on Your Notes May Change Significantly Despite Only a Small Change in the Level of the Lesser Performing Index

If your notes are not redeemed and the final index level of the lesser performing index is less than its downside threshold, you will receive less than the face amount of your notes and you could lose all or a substantial portion of your investment in the notes. This means that while a drop of up to 40.00% between the initial index level and the final index level of the lesser performing index will not result in a loss of principal on the notes, a decrease in the final index level of the lesser performing index to less than 60.00% of its initial index level will result in a loss of a significant portion of the face amount of the notes despite only a small change in the level of the lesser performing



index.

**You May Not Receive a Coupon on Any Coupon Payment Date and the Potential to Receive a Coupon on a Coupon Payment Date May Terminate at Any Time During the Applicable Quarterly Observation Period**

You will be paid a coupon on a coupon payment date only if the closing level of each index is equal to or greater than its coupon barrier on each trading day during the preceding quarterly observation period. If the closing level of any index on any trading day during the applicable quarterly observation period is less than its coupon barrier, you will not receive a coupon payment on the applicable coupon payment date.

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This will be the case even if the closing level of each other index is above its coupon barrier on each trading day during the applicable quarterly observation period and even if the closing level of that index is above its coupon barrier on every other day during the applicable quarterly observation period. If this occurs during every quarterly observation period, whether due to changes in the levels of one or more than one of the indices, the overall return you earn on your notes will be zero or less and such return will be less than you would have earned by investing in a note that bears interest at the prevailing market rate.

**Because the Notes Are Linked to the Performance of the Lesser Performing Index, You Have a Greater Risk of Receiving No Quarterly Coupons and Sustaining a Significant Loss on Your Investment Than If the Notes Were Linked to Just One Index**

The risk that you will not receive any quarterly coupons, or that you will suffer a significant loss on your investment, is greater if you invest in the notes as opposed to substantially similar notes that are linked to the performance of just one index. With three indices, it is more likely that an index will close below its coupon barrier on any trading day during a quarterly observation period, or below its downside threshold on the determination date, than if the notes were linked to only one index. Therefore, it is more likely that you will not receive any quarterly coupons and that you will suffer a significant loss on your investment.

Movements in the values of the indices may be correlated or uncorrelated at different times during the term of the notes and, if there is correlation, such correlation may be positive (the indices move in the same direction) or negative (the indices move in reverse directions). You should not take the historical correlation (or lack thereof) of the indices as an indication of the future correlation, if any, of the indices. Such correlation could have an adverse effect on your return on the notes. For example, if one index is negatively correlated with the other indices during the quarterly observation period or on the determination date, as applicable, and the level of such index increases, it is likely that the other indices will decrease and such decrease could cause one or both of the other indices to close below its coupon barrier during the quarterly observation period or below its downside threshold on the determination date. In addition, although the correlation of the indices' performance may change over the term of the notes, the coupon is determined, in part, based on the correlation of the indices' performance at the time when the terms of the notes are finalized. As discussed below in "A Higher Coupon, a Lower Coupon Barrier and/or a Lower Downside Threshold May Reflect Greater Expected Volatility of the Indices, and Greater Expected Volatility Generally Indicates An Increased Risk of Declines in the Levels of the Indices and, Potentially, a Significant Loss at Maturity", higher coupons indicate a greater potential for missed coupons and for a loss on your investment at maturity, which are risks generally associated with indices that have lower correlation. In addition, other factors and inputs other than correlation may impact how the terms of the notes are set and the performance of the notes.

**A Higher Coupon, a Lower Coupon Barrier and/or a Lower Downside Threshold May Reflect Greater Expected Volatility of the Indices, and Greater Expected Volatility Generally Indicates An Increased Risk of Declines in the Levels of the Indices and, Potentially, a Significant Loss at Maturity**

The economic terms for the notes, including the coupon, the coupon barrier and the downside threshold, are based, in part, on the expected volatility of each index at the time the terms of the notes are set. "Volatility" refers to the frequency and magnitude of changes in the levels of the indices.

Higher expected volatility with respect to each index as of the trade date generally indicates a greater expectation as of that date that (i) the final index level of the lesser performing index could ultimately be less than its downside threshold on the determination date, which would result in a loss of a significant portion or all of your investment in the notes, or (ii) the closing level of any index on any trading day during the preceding quarterly observation period will be less than its coupon barrier, which would result in the nonpayment of the coupon. At the time the terms of the notes are set, higher expected volatility will generally be reflected in a higher coupon, a lower coupon barrier and/or a

lower downside threshold, as compared to otherwise comparable notes issued by the same issuer with the same maturity (taking into account any ability of the issuer to redeem the notes prior to maturity) but with one or more different indices. However, there is no guarantee that the higher coupon, lower coupon barrier or lower downside threshold set for your notes on the trade date will adequately compensate you, from a

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risk-potential reward perspective, for the greater risk of receiving no coupon on any coupon payment date or of losing some or all of your investment in the notes.

A relatively higher coupon (as compared to otherwise comparable securities), which would increase the positive return if the closing level of each index is greater than or equal to its coupon barrier on every trading day during the preceding quarterly observation period, or a relatively lower coupon barrier, which would increase the amount that an index could decrease during the preceding quarterly observation period before the notes become ineligible for a particular coupon payment, may generally indicate an increased risk that the level of each index will decrease substantially, which would result in the nonpayment of the coupon on some or all of the coupon payment dates.

Similarly, a relatively lower downside threshold (as compared to otherwise comparable securities), which would increase the buffer against the loss of principal, may generally indicate an increased risk that the level of each index will decrease substantially. This would result in a significant loss at maturity if the final index level of any index is less than its downside threshold. Further, a relatively lower downside threshold may not indicate that the notes have a greater likelihood of a return of principal at maturity based on the performance of each index.

You should not take the historical volatility of any index as an indication of its future volatility. You should be willing to accept the downside market risk of each index and the potential to not receive some coupons and to lose a significant portion or all of your investment in the notes.

#### We Are Able to Redeem Your Notes at Our Option

On any quarterly coupon payment date on or after August 7, 2019, we will be permitted to redeem your notes at our option. Even if we do not exercise our option to redeem your notes, our ability to do so may adversely affect the value of your notes. It is our sole option whether to redeem your notes prior to maturity and we may or may not exercise this option for any reason. Many factors may influence the likelihood of your notes being redeemed. In general, your notes are more likely to be redeemed when prevailing interest rates are lower than the applicable coupon payable on a coupon payment date. In addition, we will be more likely to redeem the notes when we expect the closing level of each index to be greater than or equal to its coupon barrier on every trading day during the applicable quarterly observation period. On the other hand, we will be less likely to redeem the notes when we expect the closing level of any index to be less than its (i) coupon barrier on any trading day during the applicable quarterly observation period or (ii) downside threshold on the determination date, such that you will receive no coupons and/or that you will suffer a significant loss on your initial investment in the notes at maturity. Because of this redemption option, the term of your notes could be anywhere between three months and forty-two months. You may not be able to reinvest the proceeds from an investment in the notes at a comparable return for a similar level of risk in the event the notes are redeemed prior to maturity, particularly if the notes are redeemed in the low interest rate environment described above.

#### The Coupon Does Not Reflect the Actual Performance of the Indices

On any coupon payment date, you will receive a coupon only if the level of each index is equal to or above its coupon barrier on every trading day during the preceding quarterly observation period. The coupon for each quarterly coupon payment date is different from, and may be less than, a coupon that is based on the performance of an index between the trade date and any observation end date or between two observation end dates. You will not participate in any appreciation of any index. Accordingly, the coupons, if any, on the notes may be less than the return you could earn on another instrument linked to one of the indices that pays coupons based on the performance of such index from the trade date to any observation end date or from observation end date to observation end date. In addition, although the quarterly observation periods and coupon payment dates occur quarterly, there may not be an equal number of trading days in each quarterly observation period and there may not be an equal number of days between coupon payment dates. However, the way in which the coupon is determined will not vary based on the actual number of trading days

in any quarterly observation period or the actual number of days between coupon payment dates.

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### The Cash Settlement Amount Will Be Based Solely on the Lesser Performing Index

The cash settlement amount will be based on the lesser performing index without regard to the performance of the other indices. As a result, you could lose all or some of your initial investment if the lesser performing index return is negative, even if there is an increase in the level of any (or all) of the other indices. This could be the case even if the other indices increased by an amount greater than the decrease in the lesser performing index.

### You Are Exposed to the Market Risk of Each Index

Your return on the notes will be contingent upon the independent performance of each of the S&P 500<sup>®</sup> Index, the Russell 2000<sup>®</sup> Index and the EURO STOXX 50<sup>®</sup> Index. Unlike an instrument with a return linked to a basket of assets, in which risk is mitigated and diversified among all of the components of the basket, you will be fully exposed to the risks related to each index. Poor performance by any one of the indices over the term of the notes may negatively affect your return and will not be offset or mitigated by positive performance by the other indices.

To receive any coupon payment, each index must close at or above its coupon barrier on every trading day during the preceding quarterly observation period. To receive any contingent repayment of principal at maturity, each index must close at or above its downside threshold on the determination date. In addition, if not redeemed prior to maturity, you will incur a loss proportionate to the negative return of the lesser performing index even if the other indices appreciate during the term of the notes. Accordingly, your investment is subject to the market risk of each index.

Movements in the values of the indices may be correlated or uncorrelated at different times during the term of the notes. Any such correlation may be positive (the indices move in the same direction) or negative (the indices move in reverse directions), and such correlation (or lack thereof) could have an adverse effect on your return on the notes. If the performance of the indices is not correlated or is negatively correlated, the risk of not receiving a coupon and of incurring a significant loss of principal at maturity generally increases.

For example, the likelihood that one of the indices will close below its coupon barrier on any trading day during the preceding quarterly observation period, and/or its downside threshold on the determination date, generally will increase when the movements in the values of the indices are negatively correlated. This results in a greater likelihood that a coupon will not be paid during the term of the notes and/or that there will be a significant loss of principal at maturity if the notes are not previously redeemed.

However, even if the indices have a higher positive correlation, one or more of those indices might close below its coupon barrier on any trading day during the preceding quarterly observation period or its downside threshold on the determination date, as each of the indices may decrease in value together.

The coupon and the downside threshold are determined, in part, based on the correlations of the indices' performance at the time when the terms of the notes are set on the trade date. A higher coupon, a lower coupon barrier and/or a lower downside threshold (as compared to otherwise comparable securities) are generally associated with more negative correlation, which reflects a greater likelihood that a coupon will not be paid and that there will be a loss on your investment at maturity. However, there is no guarantee that the higher coupon, lower coupon barrier or lower downside threshold set for your notes on the trade date will adequately compensate you, from a risk-potential reward perspective, for the greater risk of receiving no coupon on any coupon payment date or of losing some or all of your investment in the notes.

The correlations referenced in setting the terms of the notes are based on the future expected correlation of the indices as determined by us and are not derived from the daily levels of the indices over the period set forth under "Correlation of the Indices." Other factors and inputs other than correlation may also impact how the terms of the notes are set and

the performance of the notes.

The greater the number of indices to which a note is linked, generally the more likely it is that one of the indices will close below its coupon barrier or its downside threshold, resulting in a greater likelihood that a coupon will not be paid during the terms of the notes and that there will be a significant loss of principal at maturity.

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### The Market Value of Your Notes May Be Influenced by Many Unpredictable Factors

When we refer to the market value of your notes, we mean the value that you could receive for your notes if you chose to sell them in the open market before the stated maturity date. A number of factors, many of which are beyond our control and impact the value of bonds and options generally, will influence the market value of your notes, including:

- the levels of the indices;
- the volatility – i.e., the frequency and magnitude of changes – in the closing levels of the indices;
- the dividend rates of the index stocks;
- economic, financial, regulatory, political, military and other events that affect stock markets generally and the index stocks, and which may affect the closing levels of the indices;
- the actual and expected positive or negative correlation between the indices, or the actual or expected absence of any such correlation;
- interest rates and yield rates in the market;
- the time remaining until your notes mature;
- and
- our creditworthiness and the creditworthiness of The Goldman Sachs Group, Inc., whether actual or perceived, and including actual or anticipated upgrades or downgrades in our credit ratings or the credit ratings of The Goldman Sachs Group, Inc. or changes in other credit measures.

These factors, and many other factors, will influence the price you will receive if you sell your notes before maturity, including the price you may receive for your notes in any market making transaction. If you sell your notes before maturity, you may receive less than the face amount of your notes or the amount you may receive at maturity.

You cannot predict the future performance of the indices based on their historical performance. The actual performance of the indices over the life of the offered notes, the cash settlement amount paid on the stated maturity date, as well as the coupon payable, if any, on each coupon payment date, may bear little or no relation to the historical closing levels of the indices or to the hypothetical examples shown elsewhere in this document.

### Your Notes May Not Have an Active Trading Market

Your notes will not be listed or displayed on any securities exchange or included in any interdealer market quotation system, and there may be little or no secondary market for your notes. Even if a secondary market for your notes develops, it may not provide significant liquidity and we expect that transaction costs in any secondary market would be high. As a result, the difference between bid and asked prices for your notes in any secondary market could be substantial.

### If You Purchase Your Notes at a Premium to Face Amount, the Return on Your Investment Will Be Lower Than the Return on Notes Purchased at Face Amount and the Impact of Certain Key Terms of the Notes Will Be Negatively Affected

The cash settlement amount you will be paid for your notes on the stated maturity date, if any, or the amount we will pay you upon any early redemption of your notes, will not be adjusted based on the issue price you pay for the notes. If you purchase notes at a price that differs from the face amount of the notes, then the return on your investment in such notes held to the stated maturity date or date of early redemption will differ from, and may be substantially less than, the return on notes purchased at face amount. If you purchase your notes at a premium to face amount and hold them to the stated maturity date or date of early redemption, the return on your investment in the notes will be lower than it would have been had you purchased the notes at face amount or a discount to face amount.

### If the Levels of the Indices Change, the Market Value of Your Notes May Not Change in the Same Manner



The price of your notes may move differently than the performance of the indices. Changes in the levels of the indices may not result in a comparable change in the market value of your notes. Even if the closing level of each index is greater than or equal to its coupon barrier during some portion of the life of

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the notes, the market value of your notes may not reflect this. We discuss some of the reasons for this disparity under “— The Market Value of Your Notes May Be Influenced by Many Unpredictable Factors” above.

#### Anticipated Hedging Activities by Goldman Sachs or Our Distributors May Negatively Impact Investors in the Notes and Cause Our Interests and Those of Our Clients and Counterparties to be Contrary to Those of Investors in the Notes

Goldman Sachs expects to hedge our obligations under the notes by purchasing listed or over-the-counter options, futures and/or other instruments linked to the indices or the index stocks. Goldman Sachs also expects to adjust the hedge by, among other things, purchasing or selling any of the foregoing, and perhaps other instruments linked to the indices or the index stocks, at any time and from time to time, and to unwind the hedge by selling any of the foregoing on or before the determination date for your notes. Alternatively, Goldman Sachs may hedge all or part of our obligations under the notes with unaffiliated distributors of the notes which we expect will undertake similar market activity. Goldman Sachs may also enter into, adjust and unwind hedging transactions relating to other index-linked notes whose returns are linked to changes in the levels of the indices or the index stocks, as applicable.

In addition to entering into such transactions itself, or distributors entering into such transactions, Goldman Sachs may structure such transactions for its clients or counterparties, or otherwise advise or assist clients or counterparties in entering into such transactions. These activities may be undertaken to achieve a variety of objectives, including: permitting other purchasers of the notes or other securities to hedge their investment in whole or in part; facilitating transactions for other clients or counterparties that may have business objectives or investment strategies that are inconsistent with or contrary to those of investors in the notes; hedging the exposure of Goldman Sachs to the notes including any interest in the notes that it reacquires or retains as part of the offering process, through its market-making activities or otherwise; enabling Goldman Sachs to comply with its internal risk limits or otherwise manage firmwide, business unit or product risk; and/or enabling Goldman Sachs to take directional views as to relevant markets on behalf of itself or its clients or counterparties that are inconsistent with or contrary to the views and objectives of the investors in the notes.

Any of these hedging or other activities may adversely affect the levels of the indices — directly or indirectly by affecting the price of the index stocks — and therefore the market value of your notes and the amount we will pay on your notes, if any. In addition, you should expect that these transactions will cause Goldman Sachs or its clients, counterparties or distributors to have economic interests and incentives that do not align with, and that may be directly contrary to, those of an investor in the notes. Neither Goldman Sachs nor any distributor will have any obligation to take, refrain from taking or cease taking any action with respect to these transactions based on the potential effect on an investor in the notes, and may receive substantial returns on hedging or other activities while the value of your notes declines. In addition, if the distributor from which you purchase notes is to conduct hedging activities in connection with the notes, that distributor may otherwise profit in connection with such hedging activities and such profit, if any, will be in addition to the compensation that the distributor receives for the sale of the notes to you. You should be aware that the potential to earn fees in connection with hedging activities may create a further incentive for the distributor to sell the notes to you in addition to the compensation they would receive for the sale of the notes.

#### Goldman Sachs' Trading and Investment Activities for its Own Account or for its Clients, Could Negatively Impact Investors in the Notes

Goldman Sachs is a global investment banking, securities and investment management firm that provides a wide range of financial services to a substantial and diversified client base that includes corporations, financial institutions, governments and individuals. As such, it acts as an investor, investment banker, research provider, investment manager, investment advisor, market maker, trader, prime broker and lender. In those and other capacities, Goldman Sachs purchases, sells or holds a broad array of investments, actively trades securities, derivatives, loans,

commodities, currencies, credit default swaps, indices, baskets and other financial instruments and products for its own account or for the accounts of its customers, and will have other direct or indirect interests, in the global fixed income, currency, commodity, equity, bank loan and other markets. Any of Goldman Sachs' financial market activities may, individually or in the aggregate, have an adverse effect on the market for your notes, and you should

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expect that the interests of Goldman Sachs or its clients or counterparties will at times be adverse to those of investors in the notes.

Goldman Sachs regularly offers a wide array of securities, financial instruments and other products into the marketplace, including existing or new products that are similar to your notes, or similar or linked to the indices or index stocks. Investors in the notes should expect that Goldman Sachs will offer securities, financial instruments, and other products that will compete with the notes for liquidity, research coverage or otherwise.

#### Goldman Sachs' Market-Making Activities Could Negatively Impact Investors in the Notes

Goldman Sachs actively makes markets in and trades financial instruments for its own account and for the accounts of customers. These financial instruments include debt and equity securities, currencies, commodities, bank loans, indices, baskets and other products. Goldman Sachs' activities include, among other things, executing large block trades and taking long and short positions directly and indirectly, through derivative instruments or otherwise. The securities and instruments in which Goldman Sachs takes positions, or expects to take positions, include securities and instruments of an index or index stocks, securities and instruments similar to or linked to the foregoing or the currencies in which they are denominated. Market making is an activity where Goldman Sachs buys and sells on behalf of customers, or for its own account, to satisfy the expected demand of customers. By its nature, market making involves facilitating transactions among market participants that have differing views of securities and instruments. As a result, you should expect that Goldman Sachs will take positions that are inconsistent with, or adverse to, the investment objectives of investors in the notes.

If Goldman Sachs becomes a holder of any securities of the indices or index stocks in its capacity as a market-maker or otherwise, any actions that it takes in its capacity as securityholder, including voting or provision of consents, will not necessarily be aligned with, and may be inconsistent with, the interests of investors in the notes.

#### You Should Expect That Goldman Sachs Personnel Will Take Research Positions, or Otherwise Make Recommendations, Provide Investment Advice or Market Color or Encourage Trading Strategies That Might Negatively Impact Investors in the Notes

Goldman Sachs and its personnel, including its sales and trading, investment research and investment management personnel, regularly make investment recommendations, provide market color or trading ideas, or publish or express independent views in respect of a wide range of markets, issuers, securities and instruments. They regularly implement, or recommend to clients that they implement, various investment strategies relating to these markets, issuers, securities and instruments. These strategies include, for example, buying or selling credit protection against a default or other event involving an issuer or financial instrument. Any of these recommendations and views may be negative with respect to the indices or index stocks or other securities or instruments similar to or linked to the foregoing or result in trading strategies that have a negative impact on the market for any such securities or instruments, particularly in illiquid markets. In addition, you should expect that personnel in the trading and investing businesses of Goldman Sachs will have or develop independent views of the indices or index stocks, the relevant industry or other market trends, which may not be aligned with the views and objectives of investors in the notes.

#### Goldman Sachs Regularly Provides Services to, or Otherwise Has Business Relationships with, a Broad Client Base, Which May Include the Sponsors of an Index or the Issuers of the Index Stocks or Other Entities That Are Involved in the Transaction

Goldman Sachs regularly provides financial advisory, investment advisory and transactional services to a substantial and diversified client base, and you should assume that Goldman Sachs will, at present or in the future, provide such services or otherwise engage in transactions with, among others, the sponsors of the indices or the issuers of the index

stocks, or transact in securities or instruments or with parties that are directly or indirectly related to the foregoing. These services could include making loans to or equity investments in those companies, providing financial advisory or other investment banking services, or issuing research reports. You should expect that Goldman Sachs, in providing such services, engaging in such transactions, or acting for its own account, may take actions that have direct or indirect effects on the indices or index stocks, as applicable, and that such actions could be adverse to the interests of

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investors in the notes. In addition, in connection with these activities, certain Goldman Sachs personnel may have access to confidential material non-public information about these parties that would not be disclosed to Goldman Sachs employees that were not working on such transactions as Goldman Sachs has established internal information barriers that are designed to preserve the confidentiality of non-public information. Therefore, any such confidential material non-public information would not be shared with Goldman Sachs employees involved in structuring, selling or making markets in the notes or with investors in the notes.

In this offering, as well as in all other circumstances in which Goldman Sachs receives any fees or other compensation in any form relating to services provided to or transactions with any other party, no accounting, offset or payment in respect of the notes will be required or made; Goldman Sachs will be entitled to retain all such fees and other amounts, and no fees or other compensation payable by any party or indirectly by holders of the notes will be reduced by reason of receipt by Goldman Sachs of any such other fees or other amounts.

**The Offering of the Notes May Reduce an Existing Exposure of Goldman Sachs or Facilitate a Transaction or Position That Serves the Objectives of Goldman Sachs or Other Parties**

A completed offering may reduce Goldman Sachs' existing exposure to the indices or index stocks, securities and instruments similar to or linked to the foregoing or the currencies in which they are denominated, including exposure gained through hedging transactions in anticipation of this offering. An offering of notes will effectively transfer a portion of Goldman Sachs' exposure (and indirectly transfer the exposure of Goldman Sachs' hedging or other counterparties) to investors in the notes.

The terms of the offering (including the selection of the indices or index stocks, and the establishment of other transaction terms) may have been selected in order to serve the investment or other objectives of Goldman Sachs or another client or counterparty of Goldman Sachs. In such a case, Goldman Sachs would typically receive the input of other parties that are involved in or otherwise have an interest in the offering, transactions hedged by the offering, or related transactions. The incentives of these other parties would normally differ from and in many cases be contrary to those of investors in the notes.

**Other Investors in the Notes May Not Have the Same Interests as You**

Other investors in the notes are not required to take into account the interests of any other investor in exercising remedies or voting or other rights in their capacity as securityholders or in making requests or recommendations to Goldman Sachs as to the establishment of other transaction terms. The interests of other investors may, in some circumstances, be adverse to your interests. For example, certain investors may take short positions (directly or indirectly through derivative transactions) on assets that are the same or similar to your notes, index, index stocks or other similar securities, which may adversely impact the market for or value of your notes.

**The Policies of an Index Sponsor and Changes that Affect an Index or the Index Stocks Comprising an Index Could Affect the Coupons Payable on Your Notes, if Any, or the Cash Settlement Amount on the Stated Maturity Date and the Market Value of Your Notes**

The policies of an index sponsor concerning the calculation of the level of an index, additions, deletions or substitutions of the index stocks comprising such index, and the manner in which changes affecting such index stocks or their issuers, such as stock dividends, reorganizations or mergers, are reflected in the index level, could affect the level of such index and, therefore, the coupon payable on your notes, if any, on any coupon payment date and the market value of your notes before that date. The coupons payable on your notes, if any, and their market value could also be affected if an index sponsor changes these policies, for example, by changing the manner in which it calculates the index level, or if the index sponsor discontinues or suspends calculation or publication of such index level, in

which case it may become difficult to determine the market value of your notes. If events such as these occur, the calculation agent — which initially will be GS&Co., our affiliate — may determine the applicable index levels on any such date — and thus the amount payable on any coupon payment date, if any, or the cash settlement amount on the stated maturity date — in a manner it considers appropriate, in its sole discretion. We describe the discretion that the calculation agent will have in determining the applicable index levels on any trading day, an observation end date or the determination date and the coupons payable on your notes, if any, or the cash settlement amount more fully under “Specific Terms of Your

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Notes — Discontinuance or Modification of an Index” and “Specific Terms of Your Notes — Role of Calculation Agent” below.

#### The Return on Your Notes Will Not Reflect Any Dividends Paid on the Index Stocks

The applicable index sponsor calculates the level of an index by reference to the prices of the index stocks, without taking account of the value of dividends paid on those index stocks. Therefore, the return on your notes will not reflect the return you would realize if you actually owned the index stocks included in each index and received the dividends paid on those index stocks. You will not receive any dividends that may be paid on any of the index stocks by the index stock issuers. See “— You Have No Shareholder Rights or Rights to Receive Any Index Stock” below for additional information.

#### Except to the Extent The Goldman Sachs Group, Inc. Is One of the Companies Whose Common Stock Comprises the S&P 500® Index, There Is No Affiliation Between the Index Stock Issuers or the Index Sponsors and Us

The common stock of The Goldman Sachs Group, Inc. is one of the index stocks comprising the S&P 500® Index. We are not otherwise affiliated with the issuers of the index stocks or the index sponsors. As we have told you above, however, we or our affiliates may currently or from time to time in the future own securities of, or engage in business with the index sponsors or the index stock issuers. Neither we nor any of our affiliates have participated in the preparation of any publicly available information or made any “due diligence” investigation or inquiry with respect to the indices or any of the other index stock issuers. You, as an investor in your notes, should make your own investigation into the indices and the index stock issuers. See “The Indices” below for additional information about each index.

Neither the index sponsors nor any of the other index stock issuers are involved in the offering of your notes in any way and none of them have any obligation of any sort with respect to your notes. Thus, neither the index sponsors nor any of the other index stock issuers have any obligation to take your interests into consideration for any reason, including in taking any corporate actions that might affect the market value of your notes.

#### You Have No Shareholder Rights or Rights to Receive Any Index Stock

Investing in your notes will not make you a holder of any of the index stocks. Neither you nor any other holder or owner of your notes will have any rights with respect to the index stocks, including any voting rights, any right to receive dividends or other distributions, any rights to make a claim against the index stocks or any other rights of a holder of the index stocks. Your notes will be paid in cash, as will any coupon payments, and you will have no right to receive delivery of any index stocks.

#### Past Index Performance is No Guide to Future Performance

The actual performance of the indices over the life of the notes, as well as the amount payable at maturity, if any, may bear little relation to the historical closing levels of the indices or to the hypothetical return examples set forth elsewhere in this document. We cannot predict the future performance of the indices.

Your Notes Are Linked to the EURO STOXX 50® Index, Which Is Comprised of Index Stocks That Are Traded in a Foreign Currency But Not Adjusted to Reflect Their U.S. Dollar Value, And, Therefore, the Return on Your Notes Will Not Be Adjusted for Changes in the Foreign Currency Exchange Rate



Your notes are linked to the EURO STOXX 50<sup>®</sup> Index whose index stocks are traded in a foreign currency but not adjusted to reflect their U.S. dollar value. The amount payable on your notes will not be adjusted for changes in the euro/U.S. dollar exchange rate. The amount payable will be based solely upon the overall change in the level of the EURO STOXX 50<sup>®</sup> Index. Changes in foreign currency exchange rates, however, may reflect changes in the economy of the foreign countries in which the index's component stocks are listed that, in turn, may affect the level of the EURO STOXX 50<sup>®</sup> Index.

**An Investment in the Offered Notes Is Subject to Risks Associated with Foreign Securities**

The value of your notes is linked, in part, to an index that is comprised of stocks from one or more foreign securities markets. Investments linked to the value of foreign equity securities involve particular risks. Any

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foreign securities market may be less liquid, more volatile and affected by global or domestic market developments in a different way than are the U.S. securities market or other foreign securities markets. Both government intervention in a foreign securities market, either directly or indirectly, and cross-shareholdings in foreign companies, may affect trading prices and volumes in that market. Also, there is generally less publicly available information about foreign companies than about those U.S. companies that are subject to the reporting requirements of the U.S. Securities and Exchange Commission. Further, foreign companies are subject to accounting, auditing and financial reporting standards and requirements that differ from those applicable to U.S. reporting companies.

The prices of securities in a foreign country are subject to political, economic, financial and social factors that are unique to such foreign country's geographical region. These factors include: recent changes, or the possibility of future changes, in the applicable foreign government's economic and fiscal policies; the possible implementation of, or changes in, currency exchange laws or other laws or restrictions applicable to foreign companies or investments in foreign equity securities; fluctuations, or the possibility of fluctuations, in currency exchange rates; and the possibility of outbreaks of hostility, political instability, natural disaster or adverse public health developments. The United Kingdom has voted to leave the European Union (popularly known as "Brexit"). The effect of Brexit is uncertain, and Brexit has and may continue to contribute to volatility in the prices of securities of companies located in Europe and currency exchange rates, including the valuation of the euro and British pound in particular. Any one of these factors, or the combination of more than one of these factors, could negatively affect such foreign securities market and the price of securities therein. Further, geographical regions may react to global factors in different ways, which may cause the prices of securities in a foreign securities market to fluctuate in a way that differs from those of securities in the U.S. securities market or other foreign securities markets. Foreign economies may also differ from the U.S. economy in important respects, including growth of gross national product, rate of inflation, capital reinvestment, resources and self-sufficiency, which may have a positive or negative effect on foreign securities prices. See "The Indices – The EURO STOXX 50 Index" below for additional information.

#### As Calculation Agent, GS&Co. Will Have the Authority to Make Determinations that Could Affect the Value of Your Notes

As calculation agent for your notes, GS&Co. will have discretion in making certain determinations that affect your notes, including determining: the closing levels of the indices on any trading day during a quarterly observation period, which we will use to determine the coupon, if any, we will pay on any applicable coupon payment date; the final index level of the lesser performing index on the determination date, which we will use to determine the amount we must pay on the stated maturity date; the trading days during each quarterly observation period; whether to exclude a trading day during an observation period due to a market disruption event; whether to postpone an observation end date or the determination date because of a market disruption event or a non-trading day; the observation end dates; the trading days; the coupon payment dates; and the stated maturity date. The calculation agent also has discretion in making certain adjustments relating to a discontinuation or modification of the indices. See "Specific Terms of Your Notes — Discontinuance or Modification of an Index" below. The exercise of this discretion by GS&Co. could adversely affect the value of your notes and may present GS&Co. with a conflict of interest. We may change the calculation agent at any time without notice and GS&Co. may resign as calculation agent at any time upon 60 days' written notice to us.

#### The Calculation Agent Can Postpone an Observation End Date or the Determination Date, as the Case May Be, If a Market Disruption Event or a Non-Trading Day Occurs or is Continuing

If the calculation agent determines that, on a date that would otherwise be an observation end date or the determination date, a market disruption event has occurred or is continuing with respect to an index or that day is not a

trading day with respect to any index, such observation end date or the determination date will be postponed as provided under “Specific Terms of Your Notes — Observation End Dates” and “Specific Terms of Your Notes — Determination Date”, as applicable. In no case, however, will the observation end date or the determination date be postponed to a date later than the corresponding originally scheduled coupon payment date or the originally scheduled stated maturity date, as applicable, or if the corresponding originally scheduled coupon payment date or the originally scheduled stated maturity date is not a business day, later than the first business day after the corresponding originally scheduled coupon payment date or the originally scheduled stated maturity date. Moreover, if an

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observation end date or the determination date, as applicable, is postponed to the last possible day, but the market disruption event has not ceased by that day or that day is not a trading day, that day will nevertheless be the observation end date or the determination date, as applicable, for the corresponding coupon payment date or stated maturity date. In such a case, the calculation agent will determine the applicable closing levels or final index levels for such observation end date or the determination date based on the procedures described under “Specific Terms of Your Notes — Consequences of a Market Disruption Event or a Non-Trading Day” below.

#### We May Sell an Additional Aggregate Face Amount of the Notes at a Different Issue Price

At our sole option, we may decide to sell an additional aggregate face amount of the notes subsequent to the date of this document. The issue price of the notes in the subsequent sale may differ substantially (higher or lower) from the issue price you paid as provided on the cover of this document.

#### There are Small-Capitalization Stock Risks Associated with the Russell 2000® Index

The Russell 2000® Index is comprised of stocks of companies that may be considered small capitalization companies. These companies often have greater stock price volatility, lower trading volume and less liquidity than large capitalization companies and therefore the Russell 2000® Index may be more volatile than an index in which a greater percentage of the constituent stocks are issued by large-capitalization companies.

#### Certain Considerations for Insurance Companies and Employee Benefit Plans

Any insurance company or fiduciary of a pension plan or other employee benefit plan that is subject to the prohibited transaction rules of the Employee Retirement Income Security Act of 1974, as amended, which we call “ERISA”, or the Internal Revenue Code of 1986, as amended, including an IRA or a Keogh plan (or a governmental plan to which similar prohibitions apply), and that is considering purchasing the offered notes with the assets of the insurance company or the assets of such a plan, should consult with its counsel regarding whether the purchase or holding of the offered notes could become a “prohibited transaction” under ERISA, the Internal Revenue Code or any substantially similar prohibition in light of the representations a purchaser or holder in any of the above categories is deemed to make by purchasing and holding the offered notes. This is discussed in more detail under “Employee Retirement Income Security Act” below.

#### The Tax Consequences of an Investment in Your Notes Are Uncertain

The tax consequences of an investment in your notes are uncertain, both as to the timing and character of any inclusion in income in respect of your notes.

The Internal Revenue Service announced on December 7, 2007 that it is considering issuing guidance regarding the tax treatment of an instrument such as your notes, and any such guidance could adversely affect the value and the tax treatment of your notes. Among other things, the Internal Revenue Service may decide to require the holders to accrue ordinary income on a current basis and recognize ordinary income on payment at maturity, and could subject non-U.S. investors to withholding tax. Furthermore, in 2007, legislation was introduced in Congress that, if enacted, would have required holders that acquired instruments such as your notes after the bill was enacted to accrue interest income over the term of such instruments. It is not possible to predict whether a similar or identical bill will be enacted in the future, or whether any such bill would affect the tax treatment of your notes. We describe these developments in more detail under “Supplemental Discussion of Federal Income Tax Consequences – United States Holders – Possible Change in Law” below. You should consult your tax advisor about this matter. Except to the extent otherwise provided by law,

GS Finance Corp. intends to continue treating the notes for U.S. federal income tax purposes in accordance with the treatment described under “Supplemental Discussion of Federal Income Tax Consequences” on page S-58 below unless and until such time as Congress, the Treasury Department or the Internal Revenue Service determine that some other treatment is more appropriate. Please also consult your tax advisor concerning the U.S. federal income tax and any other applicable tax consequences to you of owning your notes in your particular circumstances.

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Foreign Account Tax Compliance Act (FATCA) Withholding May Apply to Payments on Your Notes, Including as a Result of the Failure of the Bank or Broker Through Which You Hold the Notes to Provide Information to Tax Authorities

Please see the discussion under “United States Taxation — Taxation of Debt Securities — Foreign Account Tax Compliance Act (FATCA) Withholding” in the accompanying prospectus for a description of the applicability of FATCA to payments made on your notes. The discussion in that section is hereby modified to reflect regulations proposed by the Treasury Department indicating its intent to eliminate the requirements under FATCA of withholding on gross proceeds from the sale, exchange, maturity or other disposition of relevant financial instruments. The Treasury Department has indicated that taxpayers may rely on these proposed regulations pending their finalization.

### Specific Terms of Your Notes

We refer to the notes we are offering by this document as the “offered notes” or the “notes”. Please note that in this document, references to “GS Finance Corp.”, “we”, “our” and “us” mean only GS Finance Corp. and do not include its subsidiaries or affiliates, references to “The Goldman Sachs Group, Inc.”, our parent company, mean only The Goldman Sachs Group, Inc. and do not include its subsidiaries or affiliates and references to “Goldman Sachs” mean The Goldman Sachs Group, Inc. together with its consolidated subsidiaries and affiliates, including us. Also, references to the “accompanying prospectus” mean the accompanying prospectus, dated July 10, 2017, and references to the “accompanying prospectus supplement” mean the accompanying prospectus supplement, dated July 10, 2017, for Medium-Term Notes, Series E, in each case of GS Finance Corp. and The Goldman Sachs Group, Inc. Please note that in this section entitled “Specific Terms of Your Notes”, references to “holders” mean those who own notes registered in their own names, on the books that we or the trustee maintain for this purpose, and not those who own beneficial interests in notes registered in street name or in notes issued in book-entry form through The Depository Trust Company. Please review the special considerations that apply to owners of beneficial interests in the accompanying prospectus, under “Legal Ownership and Book-Entry Issuance”.

The offered notes are part of a series of debt securities, entitled “Medium-Term Notes, Series E”, that we may issue under the indenture from time to time as described in the accompanying prospectus supplement and accompanying prospectus. The offered notes are also “indexed debt securities”, as defined in the accompanying prospectus.

This document summarizes specific financial and other terms that apply to the offered notes, including your notes; terms that apply generally to all Series E medium-term notes are described in “Description of Notes We May Offer” in the accompanying prospectus supplement. The terms described here supplement those described in the accompanying prospectus supplement and the accompanying prospectus and, if the terms described here are inconsistent with those described there, the terms described here are controlling.

In addition to those terms described under “Summary Information” in this document, the following terms will apply to your notes:

Specified currency:

U.S. dollars (“\$”)

Form of note:

global form only: yes, at DTC

non-global form available: no

Denominations: each note registered in the name of a holder must have a face amount of \$10 or an integral multiple of \$10 in excess thereof

Defeasance applies as follows:

full defeasance: no

covenant defeasance: no

Other terms:

the default amount will be payable on any acceleration of the maturity of your notes as described under “— Special Calculation Provisions” below

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a business day for your notes will not be the same as a business day for our other Series E medium-term notes, as described under “— Special Calculation Provisions” below  
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a trading day for your notes will be as described under “— Special Calculation Provisions” below. Please note that the information about the settlement or trade date, issue price, discount or commission and net proceeds to GS Finance Corp. on the front cover page or elsewhere in this document relates only to the initial issuance and sale of the offered notes. We may decide to sell additional notes on one or more dates after the date of this document, at issue prices and with underwriting discounts and net proceeds that differ from the amounts set forth on the front cover page or elsewhere in this document. If you have purchased your notes in a market-making transaction after the initial issuance and sale of the offered notes, any such relevant information about the sale to you will be provided in a separate confirmation of sale.

We describe the terms of your notes in more detail below.

#### Index, Index Sponsor and Index Stocks

In this document, when we refer to an index, we mean either the S&P 500<sup>®</sup> Index, the Russell 2000<sup>®</sup> Index or the EURO STOXX 50<sup>®</sup> Index specified on the front cover page, or any successor index, as each may be modified, replaced or adjusted from time to time as described under “— Discontinuance or Modification of an Index” below. When we refer to an index sponsor as of any time, we mean the entity, including any successor sponsor, that determines and publishes the applicable index as then in effect. When we refer to the index stocks of an index as of any time, we mean the stocks that comprise the index as then in effect, after giving effect to any additions, deletions or substitutions.

#### Payment of a Contingent Coupon

Subject to our redemption right, on each coupon payment date, for each \$10 face amount of your notes, we will pay you an amount in cash equal to:

- if the closing level of each index on every trading day during the preceding quarterly observation period is greater than or equal to its coupon barrier, between \$0.25625 and \$0.2625 (between 2.5625% and 2.625% quarterly or between 10.25% and 10.50% per annum); or
- if the closing level of any index on any trading day during the preceding quarterly observation period is less than its coupon barrier, \$0.00.

With respect to each index, the coupon barrier is 70.00% of its initial index level (rounded to the nearest one-thousandth).

A quarterly observation period is the period from but excluding each observation end date (or the trade date, in the case of the first quarterly observation period) to and including the next succeeding observation end date excluding any date or dates on which the calculation agent determines that a market disruption event with respect to any index occurs or is continuing or that the calculation agent determines is not a trading day with respect to any index.

Notwithstanding the immediately preceding sentence, if the calculation agent determines that, with respect to any index, a market disruption event occurs or is continuing on the observation end date for the applicable quarterly observation period or that day is not otherwise a trading day, the observation end date, and therefore the last day for such quarterly observation period, will be postponed as provided under “— Observation End Dates” below.

#### Payment of Principal on Stated Maturity Date

Subject to our early redemption right, for each \$10 face amount of your notes, we will pay you on the stated maturity date, in addition to any coupon payment then due, an amount in cash equal to:

- if the final index level of the lesser performing index is greater than or equal to its downside threshold, \$10; or

if the final index level of the lesser performing index is less than its downside threshold, the sum of (1) \$10 plus (2) the product of (i) \$10 times (ii) the lesser performing index return.

With respect to each index, the downside threshold is 60.00% of its initial index level (rounded to the nearest one-thousandth).

With respect to each index, the index return is calculated by subtracting the initial index level from the

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final index level and dividing the result by the initial index level, with the quotient expressed as a percentage. The lesser performing index is the index with the lowest index return. The lesser performing index return is the index return of the lesser performing index.

With respect to each index, the initial index level will be set on the trade date and will be the closing level of such index on the trade date. With respect to each index, the calculation agent will determine the final index level, which will be the closing level of such index on the determination date. However, the calculation agent will have discretion to adjust the closing level on any observation end date or the determination date or to determine it in a different manner as described under “— Consequences of a Market Disruption Event or a Non-Trading Day” and “— Discontinuance or Modification of an Index” below.

#### Stated Maturity Date

The stated maturity date is expected to be November 8, 2022, unless that day is not a business day, in which case the stated maturity date will be postponed to the next following business day. If the determination date is postponed as described under “— Determination Date” below, the stated maturity date will be postponed by the same number of business day(s) from but excluding the originally scheduled determination date to and including the actual determination date.

#### Determination Date

The determination date is expected to be November 3, 2022, unless the calculation agent determines that, with respect to an index, a market disruption event occurs or is continuing on that day or that day is not otherwise a trading day.

In the event the originally scheduled determination date is a non-trading day with respect to any index, the determination date will be the first day thereafter that is a trading day for all indices (the “first qualified trading day”) provided that no market disruption event occurs or is continuing with respect to an index on that day. If a market disruption event with respect to an index occurs or is continuing on the originally scheduled determination date or the first qualified trading day, the determination date will be the first following trading day on which the calculation agent determines that each index has had at least one trading day (from and including the originally scheduled determination date or the first qualified trading day, as applicable) on which no market disruption event has occurred or is continuing and the closing level of each index will be determined on or prior to the postponed determination date as set forth under “— Consequences of a Market Disruption Event or a Non-Trading Day” below. (In such case, the determination date may differ from the date on which the level of an index is determined for the purpose of the calculations to be performed on the determination date.) In no event, however, will the determination date be postponed to a date later than the originally scheduled stated maturity date or, if the originally scheduled stated maturity date is not a business day, later than the first business day after the originally scheduled stated maturity date, either due to the occurrence of serial non-trading days or due to the occurrence of one or more market disruption events. On such last possible determination date, if a market disruption event occurs or is continuing with respect to an index that has not yet had such a trading day on which no market disruption event has occurred or is continuing or if such last possible day is not a trading day with respect to such index, that day will nevertheless be the determination date.

#### Coupon and Coupon Payment Dates

The coupons will be calculated and paid as described in this document.

The coupons on the offered notes will be paid on the coupon payment dates (to be set on the trade date and are expected to be the dates specified in the table under “Summary Information — Key Terms — Coupon payment dates” on page S-6, unless, for any such coupon payment date, that day is not a business day, in which case such coupon

payment date will be postponed to the next following business day; if an observation end date is postponed as described under “—Observation End Dates” below, such coupon payment date will be postponed by the same number of business day(s) from but excluding the applicable originally scheduled observation end date to and including the actual observation end date). Although the coupon payment dates occur quarterly, there may not be an equal number of days between coupon payment dates.

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## Observation End Dates

The observation end dates are as specified in the table under “Summary Information — Key Terms — Coupon payment dates” on page S-6, commencing on August 5, 2019 and ending on November 3, 2022, unless the calculation agent determines that, with respect to any index, a market disruption event occurs or is continuing on that day or that day is not otherwise a trading day. In the event the originally scheduled observation end date is a non-trading day with respect to an index, the observation end date will be the first day thereafter that is a trading day for all indices (the “first qualified coupon trading day”) provided that no market disruption event occurs or is continuing for an index on that day. If a market disruption event with respect to an index occurs or is continuing on the originally scheduled observation end date or the first qualified coupon trading day, the observation end date will be the first following trading day on which the calculation agent determines that each index has had at least one trading day (from and including the originally scheduled observation end date or the first qualified coupon trading date, as applicable) on which no market disruption event has occurred or is continuing and the closing level of each index for that observation end date will be determined on or prior to the postponed observation end date as set forth under “— Consequences of a Market Disruption Event or a Non-Trading Day” below. (In such case, the observation end date may differ from the date on which the level of an index is determined for the purpose of the calculations to be performed on the observation end date.) In no event, however, will the observation end date be postponed to a date later than the originally scheduled coupon payment date or, if the originally scheduled coupon payment date is not a business day, later than the first business day after the originally scheduled coupon payment date, either due to the occurrence of serial non-trading days or due to the occurrence of one or more market disruption events. On such last possible observation end date applicable to the relevant coupon payment date, if a market disruption event occurs or is continuing with respect to an index that has not yet had such a trading day on which no market disruption event has occurred or is continuing or if such last possible day is not a trading day with respect to such index, that day will nevertheless be the observation end date. Although the observation end dates occur quarterly, there may not be an equal number of days between observation end dates.

## Consequences of a Market Disruption Event or a Non-Trading Day

With respect to any index, if a market disruption event occurs or is continuing on a day that would otherwise be an observation end date or the determination date, or such day is not a trading day, then such observation end date or the determination date will be postponed as described under “— Observation End Dates” or “— Determination Date” above. If any observation end date or the determination date is postponed to the last possible date due to the occurrence of serial non-trading days, the level of each index will be the calculation agent’s assessment of such level, in good faith and in its sole discretion, on such last possible postponed observation end date or determination date, as applicable.

If any observation end date or the determination date is postponed due to a market disruption event with respect to any index, the closing level of each index with respect to such observation end date or the final index level with respect to the determination date, as applicable, will be calculated based on (i) for any index that is not affected by a market disruption event on (A) the applicable originally scheduled observation end date or the first qualified coupon trading day thereafter (if applicable) or (B) the originally scheduled determination date or the first qualified trading day thereafter (if applicable), the closing level of the index on that date, (ii) for any index that is affected by a market disruption event on (A) the applicable originally scheduled observation end date or the first qualified coupon trading day thereafter (if applicable) or (B) the originally scheduled determination date or the first qualified trading day thereafter (if applicable), the closing level of the index on the first following trading day on which no market disruption event exists for such index and (iii) the calculation agent’s assessment, in good faith and in its sole discretion, of the level of any index on the last possible postponed observation end date or determination date, as applicable, with respect to such index as to which a market disruption event continues through the last possible postponed observation end date or determination date. As a result, this could result in the closing level on any observation end date or final index level on the determination date of each index being determined on different

calendar dates.

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For the avoidance of doubt, once the closing level for an index is determined for an observation end date or determination date, the occurrence of a later market disruption event or non-trading day will not alter such calculation.

#### Discontinuance or Modification of an Index

If an index sponsor discontinues publication of an index and such index sponsor or anyone else publishes a substitute index that the calculation agent determines is comparable to such index, or if the calculation agent designates a substitute index, then the calculation agent will determine the coupon payable, if any, on the relevant coupon payment date or the cash settlement amount on the stated maturity date by reference to the substitute index. We refer to any substitute index approved by the calculation agent as a successor index.

If the calculation agent determines during a quarterly observation period or the determination date, as applicable, that the publication of an index is discontinued and there is no successor index, the calculation agent will determine the coupon or the cash settlement amount, as applicable, on the related coupon payment date or the stated maturity date, as applicable, by a computation methodology that the calculation agent determines will as closely as reasonably possible replicate such index.

If the calculation agent determines that an index, the index stocks comprising that index or the method of calculating that index is changed at any time in any respect — including any split or reverse split and any addition, deletion or substitution and any reweighting or rebalancing of the index or of the index stocks and whether the change is made by the index sponsor under its existing policies or following a modification of those policies, is due to the publication of a successor index, is due to events affecting one or more of the index stocks or their issuers or is due to any other reason — and is not otherwise reflected in the level of the index by the index sponsor pursuant to the then-current index methodology of the index, then the calculation agent will be permitted (but not required) to make such adjustments in such index or the method of its calculation as it believes are appropriate to ensure that the levels of such index used to determine the coupon or cash settlement amount, as applicable, on the related coupon payment date or the stated maturity date, as applicable, is equitable.

All determinations and adjustments to be made by the calculation agent with respect to an index may be made by the calculation agent in its sole discretion. The calculation agent is not obligated to make any such adjustments.

#### Default Amount on Acceleration

If an event of default occurs and the maturity of your notes is accelerated, we will pay the default amount in respect of the principal of your notes at the maturity, instead of the amount payable on the stated maturity date as described earlier. We describe the default amount under “— Special Calculation Provisions” below.

For the purpose of determining whether the holders of our Series E medium-term notes, which include your notes, are entitled to take any action under the indenture, we will treat the outstanding face amount of each of your notes as the outstanding principal amount of that note. Although the terms of your notes differ from those of the other Series E medium-term notes, holders of specified percentages in principal amount of all Series E medium-term notes, together in some cases with other series of our debt securities, will be able to take action affecting all the Series E medium-term notes, including your notes, except with respect to certain Series E medium-term notes if the terms of such notes specify that the holders of specified percentages in principal amount of all of such notes must also consent to such action. This action may involve changing some of the terms that apply to the Series E medium-term notes, accelerating the maturity of the Series E medium-term notes after a default or waiving some of our obligations under the indenture. In addition, certain changes to the indenture and the notes that only affect certain debt securities may be made with the approval of holders of a majority in principal amount of such affected debt securities. We discuss these matters in the accompanying prospectus under “Description of Debt Securities We May Offer — Default, Remedies and

Waiver of Default” and “— Modification of the Debt Indentures and Waiver of Covenants.

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### Manner of Payment

Any payment or delivery on your notes at maturity will be made to an account designated by the holder of your notes and approved by us, or at the office of the trustee in New York City, but only when your notes are surrendered to the trustee at that office. We also may make any payment or delivery in accordance with the applicable procedures of the depositary.

### Modified Business Day

As described in the accompanying prospectus, any payment on your notes that would otherwise be due on a day that is not a business day may instead be paid on the next day that is a business day, with the same effect as if paid on the original due date. For your notes, however, the term business day may have a different meaning than it does for other Series E medium-term notes. We discuss this term under “— Special Calculation Provisions” below.

### Role of Calculation Agent

The calculation agent in its sole discretion will make all determinations regarding each index, the observation end dates, the coupon payment dates, the regular record dates, the coupon, if any, on each coupon payment date, each index return, the closing levels of the indices on each observation end date, each final index level, the determination date, business days, trading days, postponement of a coupon payment date, the stated maturity date and the amount of cash payable on your notes at maturity. Absent manifest error, all determinations of the calculation agent will be final and binding on you and us, without any liability on the part of the calculation agent.

Please note that GS&Co., our affiliate, is currently serving as the calculation agent as of the date of this document. We may change the calculation agent for your notes at any time after the date of this document without notice and GS&Co. may resign as calculation agent at any time upon 60 days' written notice to us.

### Our Early Redemption Right

We may redeem your notes, at our option, in whole but not in part, on each coupon payment date on or after August 7, 2019, for an amount equal to 100% of the face amount plus any coupon then due.

If we choose to exercise our early redemption right described in this document, we will notify the holder of your notes and the trustee by giving at least two business days' prior notice. The day we give the notice, which will be a business day, will be the redemption notice date and the immediately following coupon payment date, which we will state in the redemption notice, will be the redemption date. We will not give a redemption notice that results in a redemption date later than the stated maturity date.

If we give the holder a redemption notice, we will redeem the entire outstanding face amount of your notes as follows. On the redemption date, we will pay to the holder of record on the scheduled business day immediately preceding the redemption date 100% of the face amount in cash, together with any coupon then due, in the manner described under “Manner of Payment” above.

### Special Calculation Provisions

#### Business Day

When we refer to a business day with respect to your notes, we mean a day that is a New York business day as described under “Description of Debt Securities We May Offer — Calculations of Interest on Debt Securities — Business

Days” on page 21 in the accompanying prospectus. A day is a scheduled business day if, as of the trade date, such day is scheduled to be a New York business day.

#### Trading Day

When we refer to a trading day with respect to an index, we mean (i) with respect to the S&P 500<sup>®</sup> Index and the Russell 2000<sup>®</sup> Index, a day on which the respective principal securities markets for all of the index stocks are open for trading, the index sponsor is open for business and such index is calculated and published by the index sponsor and (ii) with respect to the EURO STOXX 50<sup>®</sup> Index, a day on which such index is calculated and published by the index sponsor, regardless of whether one or more of the

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principal securities markets for the index stocks are closed on that day, if the index sponsor publishes the level of such index on that day.

#### Closing Level

When we refer to the closing level of the S&P 500<sup>®</sup> Index and the EURO STOXX 50<sup>®</sup> Index on any trading day, we mean the official closing level of such index or any successor index published by the index sponsor on such trading day for such index.

When we refer to the closing level of the Russell 2000<sup>®</sup> Index on any trading day, we mean the closing level of that index or any successor index reported by Bloomberg Financial Services, or any successor reporting service we may select, on such trading day for that index. Currently, whereas the index sponsor publishes the official closing level of the index to six decimal places, Bloomberg Financial Services reports the closing level to fewer decimal places. As a result, the closing level of the Russell 2000<sup>®</sup> Index reported by Bloomberg Financial Services may be lower or higher than the official closing level of the Russell 2000<sup>®</sup> Index published by the index sponsor.

#### Default Amount

The default amount for your notes on any day (except as provided in the last sentence under “— Default Quotation Period” below), will be an amount in the specified currency for the face amount of your notes, equal to the cost of having a qualified financial institution, of the kind and selected as described below, expressly assume all of our payment and other obligations with respect to your notes as of that day and as if no default or acceleration had occurred, or to undertake other obligations providing substantially equivalent economic value to you with respect to your notes. That cost will equal:

• the lowest amount that a qualified financial institution would charge to effect this assumption or undertaking, plus  
• the reasonable expenses, including reasonable attorneys' fees, incurred by the holder of your notes in preparing any documentation necessary for this assumption or undertaking.

During the default quotation period for your notes, which we describe below, the holder and/or we or the calculation agent may request a qualified financial institution to provide a quotation of the amount it would charge to effect this assumption or undertaking. If either party obtains a quotation, it must notify the other party in writing of the quotation. The amount referred to in the first bullet point above will equal the lowest — or, if there is only one, the only — quotation obtained, and as to which notice is so given, during the default quotation period. With respect to any quotation, however, the party not obtaining the quotation may object, on reasonable and significant grounds, to the assumption or undertaking by the qualified financial institution providing the quotation and notify the other party in writing of those grounds within two business days after the last day of the default quotation period, in which case that quotation will be disregarded in determining the default amount.

#### Default Quotation Period

The default quotation period is the period beginning on the day the default amount first becomes due and ending on the third business day after that day, unless:

• no quotation of the kind referred to above is obtained, or  
• every quotation of that kind obtained is objected to within five business days after the day the default amount first becomes due.

If either of these two events occurs, the default quotation period will continue until the third business day after the first business day on which prompt notice of a quotation is given as described above. If that quotation is objected to as described above within five business days after that first business day, however, the default quotation period will

continue as described in the prior sentence and this sentence.

In any event, if the default quotation period and the subsequent two business day objection period have not ended before the determination date, then the default amount will equal the principal amount of your notes.

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### Qualified Financial Institutions

For the purpose of determining the default amount at any time, a qualified financial institution must be a financial institution organized under the laws of any jurisdiction in the United States of America, Europe or Japan, which at that time has outstanding debt obligations with a stated maturity of one year or less from the date of issue and that is, or whose securities are, rated either:

• A-1 or higher by Standard & Poor's Ratings Services or any successor, or any other comparable rating then used by that rating agency, or

• P-1 or higher by Moody's Investors Service, Inc. or any successor, or any other comparable rating then used by that rating agency.

### Market Disruption Event

With respect to any given trading day, any of the following will be a market disruption event with respect to an index:

• a suspension, absence or material limitation of trading in index stocks constituting 20% or more, by weight, of the index on their respective primary markets, in each case for more than two consecutive hours of trading or during the one half hour before the close of trading in that market, as determined by the calculation agent in its sole discretion,

• a suspension, absence or material limitation of trading in option or futures contracts, if available, relating to the index or to index stocks constituting 20% or more, by weight, of such index, in the respective primary markets for those contracts, in each case for more than two consecutive hours of trading or during the one-half hour before the close of trading in that market, as determined by the calculation agent in its sole discretion, or

• index stocks constituting 20% or more, by weight, of the index or option or futures contracts, if available, relating to the index or to index stocks constituting 20% or more, by weight, of the index are not trading on what were the respective primary markets for those index stocks or contracts, as determined by the calculation agent in its sole discretion, and, in the case of any of these events, the calculation agent determines in its sole discretion that the event could materially interfere with the ability of GS Finance Corp. or any of its affiliates to unwind all or a material portion of a hedge that could be effected with respect to the notes. For more information about hedging by GS Finance Corp. and/or any of its affiliates, see "Use of Proceeds" and "Hedging" below.

The following events will not be market disruption events:

• a limitation on the hours or numbers of days of trading, but only if the limitation results from an announced change in the regular business hours of the relevant market, and

• a decision to permanently discontinue trading in option or futures contracts relating to an index or to any index stock. For this purpose, an "absence of trading" in the primary securities market on which an index stock is traded, or on which option or futures contracts relating to an index or an index stock are traded, will not include any time when that market is itself closed for trading under ordinary circumstances. In contrast, a suspension or limitation of trading in an index stock or in option or futures contracts, if available, relating to an index or an index stock in the primary market for that stock or those contracts, by reason of:

• a price change exceeding limits set by that market,

• an imbalance of orders relating to that index stock or those contracts, or

• a disparity in bid and ask quotes relating to that index stock or those contracts,

will constitute a suspension or material limitation of trading in that stock or those contracts in that market.

A market disruption event with respect to one index will not, by itself, constitute a market disruption event for the other unaffected index.



As is the case throughout this document, references to the index in this description of market disruption events includes any successor index as it may be modified, replaced or adjusted from time to time.

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#### Use of Proceeds

We intend to lend the net proceeds from the sale of the offered notes to The Goldman Sachs Group, Inc. or its affiliates. The Goldman Sachs Group, Inc. expects to use the proceeds from such loans for the purposes we describe in the accompanying prospectus under “Use of Proceeds”. We or our affiliates may also use those proceeds in transactions intended to hedge our obligations under the offered notes as described below.

#### hEDGING

In anticipation of the sale of the offered notes, we and/or our affiliates expect to enter into hedging transactions involving purchases of listed or over-the-counter options, futures and other instruments linked to the indices or the index stocks on or before the trade date. In addition, from time to time after we issue the offered notes, we and/or our affiliates may enter into additional hedging transactions and to unwind those we have entered into, in connection with the offered notes and perhaps in connection with other index-linked notes we issue, some of which may have returns linked to the indices or the index stocks. Consequently, with regard to your notes, from time to time, we and/or our affiliates:

- expect to acquire, or dispose of positions in listed or over-the-counter options, futures or other instruments linked to the indices or some or all of the index stocks,

- may take or dispose of positions in the securities of the index stock issuers themselves,

- may take or dispose of positions in listed or over-the-counter options or other instruments based on indices designed to track the performance of the stock exchanges or other components of the equity markets, and /or

- may take short positions in the index stocks or other securities of the kind described above — i.e., we and/or our affiliates may sell securities of the kind that we do not own or that we borrow for delivery to purchaser.

We and/or our affiliates may acquire a long or short position in securities similar to your notes from time to time and may, in our or their sole discretion, hold or resell those securities.

In the future, we and/or our affiliates expect to close out hedge positions relating to the offered notes and perhaps relating to other notes with returns linked to the indices or the index stocks. We expect these steps to involve sales of instruments linked to the indices on or shortly before the determination date. These steps may also involve sales and/or purchases of some or all of the index stocks, or listed or over-the-counter options, futures or other instruments linked to the indices, some or all of the index stocks or indices designed to track the performance of the U.S., European, Asian or other stock exchanges or other components of the U.S., European, Asian or other equity markets or other components of such markets.

The hedging activity discussed above may adversely affect the market value of your notes from time to time and the amount we will pay on your notes at maturity. See “Additional Risk Factors Specific to Your Notes” above for a discussion of these adverse effects.



## The IndICES

### The S&P 500<sup>®</sup> Index

The S&P 500<sup>®</sup> Index includes a representative sample of 500 companies in leading industries of the U.S. economy. The 500 companies are not the 500 largest companies listed on the NYSE and not all 500 companies are listed on the NYSE. S&P Dow Jones Indices LLC (“S&P”) chooses companies for inclusion in the S&P 500<sup>®</sup> Index with an aim of achieving a distribution by broad industry groupings that approximates the distribution of these groupings in the common stock population of the U.S. equity market. Although the S&P 500<sup>®</sup> Index contains 500 constituent companies, at any one time it may contain greater than 500 constituent trading lines since some companies included in the S&P 500<sup>®</sup> Index prior to July 31, 2017 may be represented by multiple share class lines in the S&P 500<sup>®</sup> Index. The S&P 500<sup>®</sup> Index is calculated, maintained and published by S&P and is part of the S&P Dow Jones Indices family of indices. Additional information is available on the following websites: [us.spindices.com/indices/equity/sp-500](http://us.spindices.com/indices/equity/sp-500) and [spdji.com/](http://spdji.com/). We are not incorporating by reference the websites or any material they include in this document.

S&P intends for the S&P 500<sup>®</sup> Index to provide a performance benchmark for the large-cap U.S. equity markets. Constituent changes are made on an as-needed basis and there is no schedule for constituent reviews. Constituent changes are generally announced one to five business days prior to the change. Relevant criteria for additions to the S&P 500<sup>®</sup> Index that are employed by S&P include: the company proposed for addition should have an unadjusted company market capitalization of \$8.2 billion or more (for spin-offs, eligibility is determined using when-issued prices, if available); using composite pricing and volume, the ratio of annual dollar value traded in the proposed constituent to float-adjusted market capitalization of that company should be 1.00 or greater and the stock should trade a minimum of 250,000 shares in each of the six months leading up to the evaluation date; the company must be a U.S. company (characterized as a Form 10-K filer with its U.S. portion of fixed assets and revenues constituting a plurality of the total and with a primary listing of the common stock on the NYSE, NYSE Arca, NYSE American (formerly NYSE MKT), NASDAQ Global Select Market, NASDAQ Select Market, NASDAQ Capital Market, Bats BZX, Bats BYX, Bats EDGA, Bats EDGX or IEX (each, an “eligible exchange”)); the proposed constituent has a public float of 50% or more of its stock; the inclusion of the company will contribute to sector balance in the index relative to sector balance in the market in the relevant market capitalization range; financial viability (the sum of the most recent four consecutive quarters’ Generally Accepted Accounting Principles (GAAP) earnings (net income excluding discontinued operations) should be positive as should the most recent quarter); and, for IPOs, the company must be traded on an eligible exchange for at least twelve months. In addition, constituents of the S&P MidCap 400<sup>®</sup> Index and the S&P SmallCap 600<sup>®</sup> Index can be added to the S&P 500<sup>®</sup> Index without meeting the financial viability, public float and/or liquidity eligibility criteria if the S&P Index Committee decides that such an addition will enhance the representativeness of the S&P 500<sup>®</sup> Index as a market benchmark. Certain types of organizational structures and securities are always excluded, including business development companies (BDCs), limited partnerships, master limited partnerships, limited liability companies (LLCs), OTC bulletin board issues, closed-end funds, ETFs, ETNs, royalty trusts, tracking stocks, preferred stock and convertible preferred stock, unit trusts, equity warrants, convertible bonds, investment trusts, rights and American depositary receipts (ADRs). Stocks are deleted from the S&P 500<sup>®</sup> Index when they are involved in mergers, acquisitions or significant restructurings such that they no longer meet the inclusion criteria, and when they substantially violate one or more of the addition criteria. Stocks that are delisted or moved to the pink sheets or the bulletin board are removed, and those that experience a trading halt may be retained or removed in S&P’s discretion. S&P evaluates additions and deletions with a view to maintaining S&P 500<sup>®</sup> Index continuity.

For constituents included in the S&P 500<sup>®</sup> Index prior to July 31, 2017, all publicly listed multiple share class lines are included separately in the S&P 500<sup>®</sup> Index, subject to, in the case of any such share class line, that share class line satisfying the liquidity and float criteria discussed above and subject to certain exceptions. It is possible that one listed share class line of a company may be included in the S&P 500<sup>®</sup> Index while a second listed share class line of

the same company is excluded. For companies that issue a second publicly traded share class to index share class holders, the newly issued share class line is

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considered for inclusion if the event is mandatory and the market capitalization of the distributed class is not considered to be de minimis.

As of July 31, 2017, companies with multiple share class lines are no longer eligible for inclusion in the S&P 500<sup>®</sup> Index. Constituents of the S&P 500<sup>®</sup> Index prior to July 31, 2017 with multiple share class lines will be grandfathered in and continue to be included in the S&P 500<sup>®</sup> Index. If an S&P 500<sup>®</sup> Index constituent reorganizes into a multiple share class line structure, that company will be reviewed for continued inclusion in the S&P 500<sup>®</sup> Index at the discretion of the S&P Index Committee.

As of April 11, 2019, the 500 companies included in the S&P 500<sup>®</sup> Index were divided into eleven Global Industry Classification Sectors. The Global Industry Classification Sectors include (with the approximate percentage currently included in such sectors indicated in parentheses): Communication Services (10.24%), Consumer Discretionary (10.29%), Consumer Staples (7.17%), Energy (5.43%), Financials (12.87%), Health Care (14.13%), Industrials (9.45%), Information Technology (21.43%), Materials (2.68%), Real Estate (3.06%) and Utilities (3.25%). (Sector designations are determined by the underlying index sponsor using criteria it has selected or developed. Index sponsors may use very different standards for determining sector designations. In addition, many companies operate in a number of sectors, but are listed in only one sector and the basis on which that sector is selected may also differ. As a result, sector comparisons between indices with different index sponsors may reflect differences in methodology as well as actual differences in the sector composition of the indices.) As of the close of business on September 21, 2018, S&P and MSCI, Inc. updated the Global Industry Classification Sector structure. Among other things, the update broadened the Telecommunications Services sector and renamed it the Communication Services sector. The renamed sector includes the previously existing Telecommunication Services Industry group, as well as the Media Industry group, which was moved from the Consumer Discretionary sector and renamed the Media & Entertainment Industry group. The Media & Entertainment Industry group contains three industries: Media, Entertainment and Interactive Media & Services. The Media industry continues to consist of the Advertising, Broadcasting, Cable & Satellite and Publishing sub-industries. The Entertainment industry contains the Movies & Entertainment sub-industry (which includes online entertainment streaming companies in addition to companies previously classified in such industry prior to September 21, 2018) and the Interactive Home Entertainment sub-industry (which includes companies previously classified in the Home Entertainment Software sub-industry prior to September 21, 2018 (when the Home Entertainment Software sub-industry was a sub-industry in the Information Technology sector)), as well as producers of interactive gaming products, including mobile gaming applications). The Interactive Media & Services industry and sub-industry includes companies engaged in content and information creation or distribution through proprietary platforms, where revenues are derived primarily through pay-per-click advertisements, and includes search engines, social media and networking platforms, online classifieds and online review companies. The Global Industry Classification Sector structure changes are effective for the S&P 500<sup>®</sup> Index as of the open of business on September 24, 2018 to coincide with the September 2018 quarterly rebalancing.

#### Calculation of the S&P 500<sup>®</sup> Index

The S&P 500<sup>®</sup> Index is calculated using a base-weighted aggregative methodology. The value of the S&P 500<sup>®</sup> Index on any day for which an index value is published is determined by a fraction, the numerator of which is the aggregate of the market price of each stock in the S&P 500<sup>®</sup> Index times the number of shares of such stock included in the S&P 500<sup>®</sup> Index, and the denominator of which is the divisor, which is described more fully below. The “market value” of any index stock is the product of the market price per share of that stock times the number of the then-outstanding shares of such index stock that are then included in the S&P 500<sup>®</sup> Index .

The S&P 500<sup>®</sup> Index is also sometimes called a “base-weighted aggregative index” because of its use of a divisor. The “divisor” is a value calculated by S&P that is intended to maintain conformity in index values over time and is adjusted for all changes in the index stocks’ share capital after the “base date” as described below. The level of the S&P 500

Index reflects the total market value of all index stocks relative to the S&P 500<sup>®</sup> Index's base date of 1941-43.

In addition, the S&P 500<sup>®</sup> Index is float-adjusted, meaning that the share counts used in calculating the S&P 500<sup>®</sup> Index reflect only those shares available to investors rather than all of a company's outstanding shares. S&P seeks to exclude shares held by certain shareholders concerned with the control of a

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company, a group that generally includes the following: officers and directors and related individuals whose holdings are publicly disclosed, private equity, venture capital, special equity firms, publicly traded companies that hold shares for control in another company, strategic partners, holders of restricted shares, employee stock ownership plans, employee and family trusts, foundations associated with the company, holders of unlisted share classes of stock, government entities at all levels (except government retirement or pension funds) and any individual person listed as a 5% or greater stakeholder in a company as reported in regulatory filings (collectively, “control holders”). To this end, S&P excludes all share-holdings (other than depositary banks, pension funds, mutual funds, exchange traded fund providers, 401(k) plans of the company, government retirement and pension funds, investment funds of insurance companies, asset managers and investment funds, independent foundations, savings plans and investment plans) with a position greater than 5% of the outstanding shares of a company from the float-adjusted share count to be used in S&P 500<sup>®</sup> Index calculations.

The exclusion is accomplished by calculating an Investable Weight Factor (IWF) for each stock that is part of the numerator of the float-adjusted index fraction described above:

$$\text{IWF} = (\text{available float shares})/(\text{total shares outstanding})$$

where available float shares is defined as total shares outstanding less shares held by control holders. In most cases, an IWF is reported to the nearest one percentage point. For companies with multiple share class lines, a separate IWF is calculated for each share class line.

#### Maintenance of the S&P 500<sup>®</sup> Index

In order to keep the S&P 500<sup>®</sup> Index comparable over time S&P engages in an index maintenance process. The S&P 500<sup>®</sup> Index maintenance process involves changing the constituents as discussed above, and also involves maintaining quality assurance processes and procedures, adjusting the number of shares used to calculate the S&P 500<sup>®</sup> Index, monitoring and completing the adjustments for company additions and deletions, adjusting for stock splits and stock dividends and adjusting for other corporate actions. In addition to its daily governance of indices and maintenance of the S&P 500<sup>®</sup> Index methodology, at least once within any 12 month period, the S&P Index Committee reviews the S&P 500<sup>®</sup> Index methodology to ensure the S&P 500<sup>®</sup> Index continues to achieve the stated objective, and that the data and methodology remain effective. The S&P Index Committee may at times consult with investors, market participants, security issuers included in or potentially included in the S&P 500<sup>®</sup> Index, or investment and financial experts.

#### Divisor Adjustments

The two types of adjustments primarily used by S&P are divisor adjustments and adjustments to the number of shares (including float adjustments) used to calculate the S&P 500<sup>®</sup> Index. Set forth below is a table of certain corporate events and their resulting effect on the divisor and the share count. If a corporate event requires an adjustment to the divisor, that event has the effect of altering the market value of the affected index stock and consequently of altering the aggregate market value of the index stocks following the event. In order that the level of the S&P 500<sup>®</sup> Index not be affected by the altered market value (which could be an increase or decrease) of the affected index stock, S&P generally derives a new divisor by dividing the post-event market value of the index stocks by the pre-event index value, which has the effect of reducing the S&P 500<sup>®</sup> Index’s post-event value to the pre-event level.

#### Changes to the Number of Shares of a Constituent

The S&P 500<sup>®</sup> Index maintenance process also involves tracking the changes in the number of shares included for each of the index companies. The timing of adjustments to the number of shares depends on the type of event causing

the change, and whether the change represents 5% or more of the total share count (for companies with multiple share class lines, the 5% threshold is based on each individual share class line rather than total company shares). Changes as a result of mergers or acquisitions are implemented when the transaction occurs. At S&P's discretion, however, de minimis merger and acquisition changes may be accumulated and implemented with the updates made at the quarterly share updates as described below. Changes in a constituent's total shares of 5% or more due to public offerings (which must be underwritten, have a publicly available prospectus or prospectus summary filed with the Securities and Exchange Commission and include a public confirmation that the offering has been

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completed) are implemented as soon as reasonably possible. Other changes of 5% or more are made weekly and are announced on Fridays for implementation after the close of trading on the following Friday. For changes of less than 5%, on the third Friday of the last month in each calendar quarter, S&P updates the share totals of companies in the S&P 500® Index as required by any changes in the number of shares outstanding. S&P implements a share / IWF freeze beginning after the market close on the Tuesday preceding the second Friday of each quarterly rebalancing month and ending after the market close on the third Friday of the quarterly rebalancing month. During this frozen period, shares and IWFs are not changed except for certain corporate action events (merger activity, stock splits and rights offerings).

#### Adjustments for Corporate Actions

There is a large range of corporate actions that may affect companies included in the S&P 500® Index. Certain corporate actions require S&P to recalculate the share count or the float adjustment or to make an adjustment to the divisor to prevent the value of the S&P 500® Index from changing as a result of the corporate action. This helps ensure that the movement of the S&P 500® Index does not reflect the corporate actions of individual companies in the S&P 500® Index.

#### Spin-Offs

As a general policy, a spin-off security is added to the S&P 500® Index at a zero price at the market close of the day before the ex-date (with no divisor adjustment). The spin-off security will remain in the S&P 500® Index if it meets all eligibility criteria. If the spin-off security is determined ineligible to remain in the S&P 500® Index, it will generally be removed after at least one day of regular way trading (with a divisor adjustment). If there is a gap between the ex-date and distribution date (or payable date), or if the spin-off security does not trade regular way on the ex-date, the spin-off security is kept in the S&P 500® Index until the spin-off security begins trading regular way.

Several additional types of corporate actions, and their related adjustments, are listed in the table below.

Corporate Action	Share Count Revision Required?	Divisor Adjustment Required?
Stock split	Yes – share count is revised to reflect new count.	No – share count and price changes are off-setting
Change in shares outstanding (secondary issuance, share repurchase and/or share buy-back)	Yes – share count is revised to reflect new count.	Yes
Special dividends	No	Yes – calculation assumes that share price drops by the amount of the dividend; divisor adjustment reflects this change in index market value
Change in IWF	No	Yes – divisor change reflects the change in market value caused by the change to an IWF
Company added to or deleted from the S&P 500® Index	No	Yes – divisor is adjusted by the net change in market value, calculated as the shares issued multiplied by the price paid
Rights Offering	No	Yes – divisor adjustment reflects increase in market capitalization (calculation assumes that offering is fully subscribed)





## Recalculation Policy

S&P reserves the right to recalculate and republish the S&P 500<sup>®</sup> Index at its discretion in the event one of the following issues has occurred: (1) incorrect or revised closing price of one or more constituent securities; (2) missed corporate event; (3) incorrect application of corporate action or index methodology; (4) late announcement of a corporate event; or (5) incorrect calculation or data entry error. The decision to recalculate the S&P 500<sup>®</sup> Index is made at the discretion of the index manager and/or index committee, as further discussed below. The potential market impact or disruption resulting from the potential recalculation is considered when making any such decision. In the event of an incorrect closing price, a missed corporate event or a misapplied corporate action, a late announcement of a corporate event, or an incorrect calculation or data entry error that is discovered within two trading days of its occurrence, the index manager may, at his or her discretion, recalculate the S&P 500<sup>®</sup> Index without involving the index committee. In the event any such event is discovered beyond the two trading day period, the index committee shall decide whether the S&P 500<sup>®</sup> Index should be recalculated. In the event of an incorrect application of the methodology that results in the incorrect composition and/or weighting of index constituents, the index committee shall determine whether or not to recalculate the S&P 500<sup>®</sup> Index following specified guidelines. In the event that the S&P 500<sup>®</sup> Index is recalculated, it shall be done within a reasonable timeframe following the detection and review of the issue.

## Calculations and Pricing Disruptions

Closing levels for the S&P 500<sup>®</sup> Index are calculated by S&P based on the closing price of the individual constituents of the S&P 500<sup>®</sup> Index as set by their primary exchange. Closing prices are received by S&P from one of its third party vendors and verified by comparing them with prices from an alternative vendor. The vendors receive the closing price from the primary exchanges. Real-time intraday prices are calculated similarly without a second verification. Prices used for the calculation of real time index values are based on the "Consolidated Tape". The Consolidated Tape is an aggregation of trades for each constituent over all regional exchanges and trading venues and includes the primary exchange. If there is a failure or interruption on one or more exchanges, real-time calculations will continue as long as the "Consolidated Tape" is operational.

If an interruption is not resolved prior to the market close, official closing prices will be determined by following the hierarchy set out in NYSE Rule 123C. A notice is published on the S&P website at [spdji.com](http://spdji.com) indicating any changes to the prices used in S&P 500<sup>®</sup> Index calculations. In extreme circumstances, S&P may decide to delay index adjustments or not publish the S&P 500<sup>®</sup> Index. Real-time indices are not restated.

## Unexpected Exchange Closures

An unexpected market/exchange closure occurs when a market/exchange fully or partially fails to open or trading is temporarily halted. This can apply to a single exchange or to a market as a whole, when all of the primary exchanges are closed and/or not trading. Unexpected market/exchange closures are usually due to unforeseen circumstances, such as natural disasters, inclement weather, outages, or other events.

To a large degree, S&P is dependent on the exchanges to provide guidance in the event of an unexpected exchange closure. S&P's decision making is dependent on exchange guidance regarding pricing and mandatory corporate actions.

NYSE Rule 123C provides closing contingency procedures for determining an official closing price for listed securities if the exchange is unable to conduct a closing transaction in one or more securities due to a system or technical issue.

3:00 PM ET is the deadline for an exchange to determine its plan of action regarding an outage scenario. As such, S&P also uses 3:00 PM ET as the cutoff.

If all major exchanges fail to open or unexpectedly halt trading intraday due to unforeseen circumstances, S&P will take the following actions:

Market Disruption Prior to Open of Trading:

(i) If all exchanges indicate that trading will not open for a given day, S&P will treat the day as an unscheduled market holiday. The decision will be communicated to clients as soon as possible

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through the normal channels. Indices containing multiple markets will be calculated as normal, provided that at least one market is open that day. Indices which only contain closed markets will not be calculated.

(ii) If exchanges indicate that trading, although delayed, will open for a given day, S&P will begin index calculation when the exchanges open.

Market Disruption Intraday:

(i) If exchanges indicate that trading will not resume for a given day, the S&P 500<sup>®</sup> Index level will be calculated using prices determined by the exchanges based on NYSE Rule 123C. Intraday S&P 500<sup>®</sup> Index values will continue to use the last traded composite price until the primary exchange publishes official closing prices.

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S&P DOW JONES INDICES DOES NOT GUARANTEE THE ADEQUACY, ACCURACY, TIMELINESS AND/OR THE COMPLETENESS OF THE S&P 500<sup>®</sup> INDEX OR ANY DATA RELATED THERETO OR ANY COMMUNICATION, INCLUDING BUT NOT LIMITED TO ORAL OR WRITTEN COMMUNICATION (INCLUDING ELECTRONIC COMMUNICATIONS) WITH RESPECT THERETO. S&P DOW JONES INDICES SHALL NOT BE SUBJECT TO ANY DAMAGES OR LIABILITY FOR ANY ERRORS, OMISSIONS, OR DELAYS THEREIN. S&P DOW JONES INDICES MAKE NO EXPRESS OR IMPLIED WARRANTIES, AND EXPRESSLY DISCLAIMS ALL WARRANTIES, OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR USE OR AS TO RESULTS TO BE OBTAINED BY GOLDMAN, OWNERS OF THE NOTES, OR ANY OTHER PERSON OR ENTITY FROM THE USE OF THE S&P 500<sup>®</sup> INDEX OR WITH RESPECT TO ANY DATA RELATED THERETO. WITHOUT LIMITING ANY OF THE FOREGOING, IN NO EVENT WHATSOEVER SHALL S&P DOW JONES INDICES BE LIABLE FOR ANY INDIRECT, SPECIAL, INCIDENTAL, PUNITIVE, OR CONSEQUENTIAL DAMAGES, INCLUDING BUT NOT LIMITED TO LOSS OF PROFITS, TRADING LOSSES, LOST TIME OR GOODWILL, EVEN IF THEY HAVE BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES, WHETHER IN CONTRACT, TORT, STRICT LIABILITY, OR OTHERWISE. THERE ARE NO THIRD PARTY BENEFICIARIES OF ANY AGREEMENTS OR ARRANGEMENTS BETWEEN S&P DOW JONES INDICES AND GOLDMAN, OTHER THAN THE

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## The Russell 2000® Index

The Russell 2000® Index is sponsored by FTSE Russell (“Russell”) and measures the composite price performance of stocks of 2,000 companies in the U.S. equity market. It is generally considered to be a “small-cap” index. Additional information about the Russell 2000® Index is available on the following website:

[ftse.com/analytics/factsheets/Home/Search#](http://ftse.com/analytics/factsheets/Home/Search#). We are not incorporating by reference the website or any material it includes in this document.

As of April 15, 2019, the 2,000 companies included in the Russell 2000® Index were divided into nine Russell Global Sectors. The Russell Global Sectors include (with the approximate percentage currently included in such sectors indicated in parentheses): Consumer Discretionary (15.30%), Consumer Staples (2.30%), Financial Services (25.01%), Health Care (15.17%), Materials & Processing (6.32%), Other Energy (3.64%), Producer Durables (13.58%), Technology (14.07%) and Utilities (4.60%). (Sector designations are determined by the index sponsor using criteria it has selected or developed. Index sponsors may use very different standards for determining sector designations. In addition, many companies operate in a number of sectors, but are listed in only one sector and the basis on which that sector is selected may also differ. As a result, sector comparisons between indices with different index sponsors may reflect differences in methodology as well as actual differences in the sector composition of the indices.)

The Russell 2000® Index includes approximately 2,000 of the smallest securities that form the Russell 3000® Index. The Russell 3000® Index is comprised of the 3,000 largest U.S. companies, or 98% based on market capitalization, of the investable U.S. equity market. The Russell 2000® Index is designed to track the performance of the small capitalization segment of the U.S. equity market.

## Selection of Constituent Stocks of the Russell 2000® Index

The Russell 2000® Index is a sub-index of the Russell 3000® Index. To be eligible for inclusion in the Russell 3000® Index, and, consequently, the Russell 2000® Index, a company’s stocks must be listed on the rank day in May of a given year (the timetable is announced each spring) and Russell must have access to documentation verifying the company’s eligibility for inclusion. Eligible initial public offerings (“IPOs”) are added to Russell U.S. Indices quarterly, based on total market capitalization rankings within the market-adjusted capitalization breaks established during the most recent reconstitution. To be added to any Russell U.S. index during a quarter outside of reconstitution, IPOs must meet additional eligibility criteria.

A company is included in the U.S. equity markets and is eligible for inclusion in the Russell 3000® Index, and consequently, the Russell 2000® Index, if that company incorporates in the U.S., has its headquarters in the U.S. and also trades with the highest liquidity in the U.S. If a company does not satisfy all of the above criteria, it can still be included in the U.S. equity market if any one of the following home country indicators is in the United States: (i) country of incorporation, (ii) country of headquarters and (iii) country in which the company trades with the highest liquidity (as defined by a two-year average daily dollar trading volume from all exchanges within the country), and the primary location of that company’s assets or its revenue, based on an average of two years of assets or revenues data, is also in the United States. In addition, if there is insufficient information to assign a company to the U.S. equity markets based on its assets or revenue, the company may nonetheless be assigned to the U.S. equity markets if the headquarters of the company is located in the United States or if the headquarters of the company is located in certain “benefit-driven incorporation countries”, or “BDIs”, and that company’s most liquid stock exchange is in the United States. The BDI countries are Anguilla, Antigua and Barbuda, Aruba, Bahamas, Barbados, Belize, Bermuda, Bonaire, British Virgin Islands, Cayman Islands, Channel Islands, Cook Islands, Curaçao, Faroe Islands, Gibraltar, Guernsey, Isle of Man, Jersey, Liberia, Marshall Islands, Panama, Saba, Sint Eustatius, Sint Maarten and Turks and Caicos Islands. A U.S.-listed company is not eligible for inclusion within the U.S. equity market if it has been classified by Russell as a

China N share on the rank date of the index reconstitution. A company will be considered a China N share if the following criteria are satisfied: (i) the company is incorporated outside of the People's Republic of China, (ii) the company is listed on the NYSE, the NASDAQ or the NYSE MKT, (iii) over 55% of the revenue or assets of the company are derived from the People's Republic of China, and (iv) the company is controlled by a mainland Chinese entity, company or individual (if the shareholder background cannot be determined with publicly available information, Russell will consider whether the establishment and origin

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of the company are in mainland China and whether the company is headquartered in mainland China). ADRs and ADSs are not eligible for inclusion in the Russell 2000® Index.

In addition, all securities eligible for inclusion in the Russell 3000® Index, and consequently, the Russell 2000® Index, must trade on an eligible exchange (BATS, IEX, NYSE, NYSE MKT, NYSE Arca and NASDAQ).

#### Exclusions from the Russell 2000® Index

Russell specifically excludes the following companies and securities from the Russell 2000® Index: (i) preferred and convertible preferred stock, redeemable shares, participating preferred stock, warrants, rights, installment receipts and trust receipts; (ii) royalty trusts, U.S. limited liability companies, closed-end investment companies, companies that are required to report Acquired Fund Fees and Expenses (as defined by the SEC), including business development companies, blank check companies, special-purpose acquisition companies and limited partnerships; (iii) companies with a total market capitalization less than \$30 million; (iv) companies with only a small portion of their shares available in the marketplace (companies with 5% or less float); (v) bulletin board, pink sheets or over-the-counter traded securities, including securities for which prices are displayed on the FINRA ADF; (vi) real estate investment trusts and publicly traded partnerships that generate, or have historically generated, unrelated business taxable income and have not taken steps to block their unrelated business taxable income to equity holders; and (vii) companies with 5% or less of the company's voting rights in the hands of unrestricted shareholders (existing constituents that do not currently have more than 5% of the company's voting rights in the hands of unrestricted shareholders have until the September 2022 review to meet this requirement).

#### Initial List of Eligible Securities

The primary criterion Russell uses to determine the initial list of securities eligible for the Russell 3000® Index and, consequently, the Russell 2000® Index, is total market capitalization, which is calculated by multiplying the total outstanding shares for a company by the market price as of the rank day for those securities being considered at annual reconstitution. IPOs may be added between constitutions as noted below. All common stock share classes are combined in determining a company's total shares outstanding. If multiple share classes have been combined, the number of total shares outstanding will be multiplied by the primary exchange close price and used to determine the company's total market capitalization. In cases where the common stock share classes act independently of each other (e.g., tracking stocks), each class is considered for inclusion separately. Stocks must have a closing price at or above \$1.00 on their primary exchange or an eligible secondary exchange on the last trading day of May of each year to be eligible for inclusion in the Russell 2000® Index. In order to reduce unnecessary turnover, if an existing member's closing price is less than \$1.00 on the rank day in May, it will be considered eligible if the average of the daily closing prices from their primary exchange during the 30 days prior to the rank day is equal to or greater than \$1.00. If an existing member does not trade on the rank day, it must price at \$1.00 or above on another eligible U.S. exchange to remain eligible.

#### Multiple Share Classes

If an eligible company trades under multiple share classes or if a company distributes shares of an additional share class to its existing shareholders through a mandatory corporate action, each share class will be reviewed independently for inclusion. Share classes in addition to the primary vehicle (the pricing vehicle) that have a total market capitalization larger than the smallest company in the Russell 3000E™ Index, an average daily dollar trading value that exceeds that of the global median, and a float greater than 5% of shares available in the market place are eligible for inclusion.

The pricing vehicle will generally be designated as the share class with the highest two-year trading volume as of the rank day. In the absence of two years' worth of data, all available data will be used for this calculation. If the difference between trading volumes for each share class is less than 20%, the share class with the most available shares outstanding will be used as the pricing vehicle. At least 100 day trading volume is necessary to consider the class as a pricing vehicle for existing members. New members will be analyzed on all available data, even if that data is for less than 100 days.

Annual Reconstitution

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The Russell 2000® Index is reconstituted annually by Russell to reflect changes in the marketplace. The list of companies is ranked based on total market capitalization on the last trading day in May, with the actual reconstitution occurring on the final Friday of June each year, unless the final Friday in June is the 29th or 30th, in which case reconstitution will occur on the preceding Friday. A full calendar for reconstitution is made available each spring.

A company's total shares are multiplied by the primary exchange close price of the pricing vehicle and used to determine the company's total market capitalization for the purpose of ranking of companies and determination of index membership. If no volume exists on the primary exchange on the rank day, the last trade price from an eligible secondary exchange will be used where volume exists (using the lowest trade price above \$1.00 if multiple secondary markets exist). The company's rank will be determined based on the cumulative market capitalization. As of the June 2016 reconstitution, any share class not qualifying for eligibility independently will not be aggregated with the pricing vehicle within the available shares calculation.

For mergers and spin-offs that are effective between the rank day and the Friday prior to annual reconstitution in June, the market capitalizations of the impacted securities are recalculated and membership is reevaluated as of the effective date of the corporate action. For corporate events that occur during the final week of reconstitution (during which reconstitution is finalized Friday after U.S. market close), market capitalizations and memberships will not be reevaluated. Non index members that have been considered ineligible as of rank day will not be reevaluated in the event of a subsequent corporate action that occurs between rank day and the reconstitution effective date.

#### Index Calculation and Capitalization Adjustments

As a capitalization-weighted index, the Russell 2000® Index reflects changes in the capitalization, or market value, of the index stocks relative to the capitalization on a base date. This discussion describes the "price return" calculation of the Russell 2000® Index. The current Russell 2000® Index value is the compounded result of the cumulative daily (or monthly) return percentages, where the starting value of the Russell 2000® Index is equal to the base value (100) and base date (December 31, 1978). Returns between any two dates can then be derived by dividing the ending period index value (IV1) by the beginning period (IV0) index value, so that the return equals  $[(IV1 / IV0) - 1] * 100$ .

Constituent stocks of the Russell 2000® Index are weighted in the Russell 2000® Index by their free-float market capitalization, which is calculated by multiplying the primary closing price by the number of free-float shares. Free-float shares are shares that are available to the public for purchase as determined by Russell. Adjustments to shares are reviewed quarterly (including at reconstitution) and for major corporate actions such as mergers.

The following are excluded from free float: shares directly owned by state, regional, municipal and local governments (excluding shares held by independently managed pension schemes for governments); shares held by sovereign wealth funds where each holding is 10% or greater of the total number of shares in issue; shares held by directors, senior executives and managers of the company, and by their family and direct relations, and by companies with which they are affiliated; shares held within employee share plans; shares held by public companies or by non-listed subsidiaries of public companies; shares held by founders, promoters, former directors, founding venture capital and private equity firms, private companies and individuals (including employees) where the holding is 10% or greater of the total number of shares in issue; all shares where the holder is subject to a lock-in clause (for the duration of that clause, after which free float changes resulting from the expiration of a lock-in clause will be implemented at the next quarterly review subsequent to there being a minimum of 20 business days between the expiration date of such lock-in clause and the Tuesday before the first Friday of the review month; if the previously locked-in shares are sold by way of a corporate event (such as a secondary offering), any change to the free float will be applied T+2 following completion and therefore will not be subject to the minimum 20 business day rule); shares held by an investor, investment company or an investment fund that is actively participating in the management of a company or is holding shares for publicly announced strategic reasons, or has successfully placed a current member to the board of

directors of a company; and shares that are subject to ongoing contractual agreements (such as swaps) where they would ordinarily be treated as restricted. In addition, while portfolio holdings such as pension funds, insurance funds or investment companies will generally not be considered as restricted from free float, where a

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single portfolio holding is 30% or greater it will be regarded as strategic and therefore restricted (and will remain restricted until the holding falls below 30%).

#### Corporate Actions Affecting the Russell 2000® Index

Russell adjusts the Russell 2000® Index on a daily basis in response to certain corporate actions and events. Therefore, a company's membership in the Russell 2000® Index and its weight in the Russell 2000® Index can be impacted by these corporate actions. The adjustment is applied based on sources of public information, including press releases and Securities and Exchange Commission filings. Prior to the completion of a corporate action or event, Russell estimates the effective date. Russell will then adjust the anticipated effective date based on public information until the date is considered final. Depending on the time on a given day that an action is determined to be final, Russell will generally either (1) apply the action before the open on the ex-date or (2) apply the action after providing appropriate notice. If Russell has confirmed the completion of a corporate action, scheduled to become effective subsequent to a rebalance, the event may be implemented in conjunction with the rebalance to limit turnover, provided appropriate notice can be given. Russell applies the following methodology guidelines when adjusting the Russell 2000® Index in response to corporate actions and events:

“No Replacement” Rule — Securities that are deleted from the Russell 2000® Index between reconstitution dates, for any reason (e.g., mergers, acquisitions or other similar corporate activity) are not replaced. Thus, the number of securities in the Russell 2000® Index over the past year will fluctuate according to corporate activity.

#### Mergers and Acquisitions

Adjustments due to mergers and acquisitions are applied to the Russell 2000® Index after the action is determined to be final. In the event that a constituent is being acquired for cash or is delisted subsequent to an index review, such constituent will be removed from the Russell 2000® Index in conjunction with the index review, assuming that the action is determined to be final and a minimum of two days' notice can be provided.

Between constituents: When mergers and acquisitions take place between companies that are both constituents of a Russell index for cash, the target company is deleted and shares of the acquiring stock are increased according to the offer terms. When mergers and acquisitions take place between companies that are both constituents of a Russell index for stock, the target company is deleted from the Russell 2000® Index at the last traded price.

Between a constituent and a non-constituent: If the target company is a member of the Russell 2000® Index, it is deleted from the Russell 2000® Index and the acquiring company will be included initially in the Russell 2000® Index provided it is eligible in all other respects at the time of the merger, regardless of previous eligibility screenings. If the acquiring company is deemed eligible it will be added to the Russell 2000® Index on the effective date and the opening price will be calculated using the offer terms.

Given sufficient market hours after the confirmation of a merger or acquisition, Russell effects the action after the close on the last day of trading of the target company, or at an appropriate time once the transaction has been deemed to be final.

Rights Offerings — Rights offered to shareholders are reflected in the Russell 2000® Index only if the subscription price of the rights is at a discount to the market price of the stock. Provided that Russell has been alerted to the rights offer prior to the ex-date, it will adjust the price of the stock for the value of the rights and increased shares according to the terms of the offering before the open on the ex-date.

Spin-offs— Spun-off companies are added to the parent company's index if the parent company's market value is reduced simultaneously per the spin-off valuation. Spun-off companies are added to the Russell 2000® Index at the same time as they are spun-off from their parent company on the ex-date of the distribution.

Initial Public Offerings — Eligible IPOs are added to the Russell 2000 Index based on total market capitalization ranking within the market-adjusted capitalization breaks established at the most recent annual reconstitution.

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An IPO of additional share classes will be considered for eligibility and must meet the same eligibility criteria for all other multiple share classes. If at the time of the IPO the additional share class does not meet the eligibility criteria for separate index membership, it will not be added to the Russell 2000® Index and will subsequently be reviewed for index membership during the next annual reconstitution.

Once IPO additions have been announced, an IPO may be added to the Russell 2000® Index prior to the previously announced schedule, if a corporate action has deemed this to be appropriate and notice can be provided (e.g. an index member automatically receives shares via a stock distribution into a projected IPO add).

**Tender Offers** — A company acquired as a result of a tender offer is removed when (i) (a) offer acceptances reach 90%; (b) shareholders have validly tendered and the shares have been irrevocably accepted for payment; and (c) all pertinent offer conditions have been reasonably met and the acquirer has not explicitly stated that it does not intend to acquire the remaining shares; (ii) where offer acceptances are below 90%, there is reason to believe that the remaining free float is under 5% based on information available at the time; or (iii) following completion of the offer the acquirer has stated intent to finalize the acquisition via a short-form merger, squeeze-out, top-up option or any other compulsory mechanism.

Where the conditions for index deletion are not met, Russell may implement a free float change based on the reported acceptance results at the expiration of the initial, subsequent or final offer period where (i) the minimum acceptance level as stipulated by the acquirer is met; (ii) shareholders have validly tendered and the shares have been irrevocably accepted for payment; (iii) all pertinent offer conditions have been reasonably met and (iv) the change to the current float factor is greater than 3%. A minimum two day notice period of the change is generally provided. If the offer includes a stock consideration, the acquiring company's shares will be increased proportionate to the free float change of the target company. If the target company's free float change is greater than 3%, the associated change to the acquiring company's shares will be implemented regardless of size. Additionally, if the change to the target company is less than 3%, then no change will be implemented to the target or the acquiring company at the time of the event, regardless of any change to the acquiring company's shares. The target company will then be deleted as a second-step, if the conditions for deletion are achieved at the expiration of a subsequent offer period.

**Delisted and Suspended Stocks** — A stock will be deleted as a constituent if it is delisted from all eligible exchanges, becomes bankrupt, files for bankruptcy protection, is insolvent or is liquidated, or where evidence of a change in circumstances makes it ineligible for index inclusion. If, however, a stock is suspended, Russell will determine its treatment as follows:

• if a constituent is declared bankrupt without any indication of compensation to shareholders, the last traded price will be adjusted to zero value and the constituent will be removed from the Russell 2000® Index with T+2 notice;

• in all other cases, a constituent will continue to be included in the Russell 2000® Index for a period of up to 20 business days at its last traded price;

• if a constituent continues to be suspended at the end of the 20 business day period, it will be subject to review and a decision will be taken to either allow the constituent to remain in the Russell 2000® Index for a further period of up to 20 business days or to remove it at zero value. In making this determination, Russell will take into account the stated reasons for the suspension. These reasons may include announcements made by the company regarding a pending acquisition or restructuring, and any stated intentions regarding a date for the resumption of trading. This procedure will be repeated at successive 20 business day intervals thereafter until either trading recommences or the suspension period reaches 80 business days;

• if the suspension period reaches 80 business days, Russell will provide notice that the constituent will be removed at zero value following the expiry of at least 40 business days;

• in certain limited circumstances where the index weight of the constituent is significant and Russell determines that a market-related value can be established for the suspended constituent, for example because similar company securities

continue to trade, deletion may take place at the market-related  
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value instead. In such circumstances, Russell will set out its rationale for the proposed treatment of the constituent at the end of the 80 business day period;

if, following the end of the 80 business day period, a suspended constituent resumes trading before the Wednesday before the first Friday of March, June, September or December, the deletion notice will be rescinded and the constituent will be retained in the Russell 2000® Index. If the constituent resumes trading after these dates but before the review effective date, the constituent will continue to be removed from the Russell 2000® Index as previously announced but in these circumstances the deletion may instead be implemented at market value; and if a constituent has been removed from the Russell 2000® Index and trading is subsequently restored, the constituent will only be re-considered for inclusion after a period of 12 months from its deletion. For the purposes of index eligibility it will be treated as a new issue.

**Bankruptcy and Voluntary Liquidations** — Companies that file for a Chapter 7 liquidation bankruptcy or have filed a liquidation plan will be removed from the Russell 2000® Index at the time of the bankruptcy filing (except when shareholder approval is required to finalize the liquidation plan, in which case the company will be removed once shareholder approval has been granted); whereas companies filing for a Chapter 11 reorganization bankruptcy will remain a member of the Russell 2000® Index, unless the company is delisted from the primary exchange, in which case normal delisting rules apply. If a company files for bankruptcy, is delisted and it can be confirmed that it will not trade on any market, including OTC, Russell may remove the stock at a nominal price of \$0.0001.

**Stock Distributions and distributions in specie**— A price adjustment for stock distributions is applied on the ex-date of the distribution. Where Russell is able to value a distribution in specie prior to the ex-date, a price adjustment is made to the company paying the dividend at the open on the ex-date. If no valuation of the distribution exists prior to the ex-date, no price adjustment is applied. Where the company whose holders are receiving the distribution is an index member, its shares will be increased according to the terms of the distribution. If such company is not an index member, the distributed shares will be added to the Russell 2000® Index until they have been settled and have listed, at which point they will be removed at the last traded price giving appropriate notice.

**Special Cash Dividends** — If a constituent pays out a special cash dividend, the price of the stock is adjusted to deduct the dividend amount before the open on the ex-date. No adjustment for regular cash dividends is made in the price return calculation of the Russell 2000® Index.

**Updates to Shares Outstanding and Free Float** — Russell reviews the Russell 2000® Index quarterly for updates to shares outstanding and to free floats used in calculating the Russell 2000® Index. The changes are implemented quarterly in March, June, September and December after the close on the third Friday of such month. The June reconstitution will be implemented on the last Friday of June (unless the last Friday occurs on the 29th or 30th of the month, in which case reconstitution will occur on the Friday prior).

In March, September and December shares outstanding and free floats are updated to reflect (i) changes greater than 1% for cumulative shares in issue changes and (ii) changes greater than 3% for cumulative free float changes. In addition, a constituent with a free float of 15% or below will not be subject to the 3% change threshold and will instead be updated if the change is greater than 1%. Updates to shares outstanding and free floats will be implemented each June regardless of size (i.e., the percentage change thresholds above will not be applied). Russell implements the June updates using data sourced primarily from the companies' publicly available information filed with the Securities and Exchange Commission.

Outside of the quarterly update cycle, outstanding shares and free float will be updated with at least two days' notice if prompted by primary or secondary offerings if (i) there is a USD \$1 billion investable market capitalization change related to a primary/secondary offering or (ii) there is a resultant 5% change in index shares related to a primary or secondary offering and a USD \$250 million investable market capitalization change. These changes are implemented after the close on the day that the subscription period closes, assuming two days' notice can be provided. If two days'

notice cannot be provided prior to the end of the subscription period, the change will still proceed with two days' notice and will be implemented at the earliest opportunity. If discovery of the event occurs more than two days after the close of the subscription period, the changes are deferred until the quarterly review cycle.

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If a company distributes shares of an additional share class to its existing shareholders through a mandatory corporate action, the additional share class will be evaluated for separate index membership. The new share class will be deemed eligible if the market capitalization of the distributed shares meets the minimum size requirement (the market capitalization of the smallest member of the Russell 3000E Index from the previous rebalance as adjusted for performance to date). If the additional share class is not eligible at the time of distribution, it will not be added to the Russell 2000® Index.

License Agreement between Frank Russell Company (doing business as Russell Investment Group) and GS Finance Corp.

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The EURO STOXX 50® Index

The EURO STOXX 50<sup>®</sup> Index is a free-float market capitalization-weighted index of 50 European blue-chip stocks and was created by and is sponsored and maintained by STOXX Limited. Publication of the EURO STOXX 50<sup>®</sup> Index began on February 26, 1998, based on an initial index value of 1,000 at December 31, 1991. The 50 stocks included in the EURO STOXX 50<sup>®</sup> Index trade in Euros, and are allocated, based on their country of incorporation, primary listing and largest trading volume, to one of the following countries: Austria, Belgium, Finland, France, Germany, Ireland, Italy, Luxembourg, the Netherlands, Portugal and Spain, which we refer to collectively as the Eurozone. Companies allocated to

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a Eurozone country but not traded in Euros are not eligible for inclusion in the index. The level of the EURO STOXX 50<sup>®</sup> Index is disseminated on the STOXX Limited website. STOXX Limited is under no obligation to continue to publish the index and may discontinue publication of it at any time. Additional information regarding the EURO STOXX 50<sup>®</sup> Index may be obtained from the STOXX Limited website: [stox.com](http://stox.com). We are not incorporating by reference the website or any material it includes in this document.

The top ten constituent stocks of the EURO STOXX 50<sup>®</sup> Index as of April 26, 2019, by weight, are: Total S.A. (5.19%), SAP SE (4.93%), LVMH Moët Hennessy Louis Vuitton SE (3.68%), Allianz SE (3.62%), LINDE PLC (3.50%), Sanofi (3.43%), Siemens AG (3.37%), ASML Holding N.V. (3.13%), Unilever N.V. (3.07%), and Banco Santander S.A. (2.90%); constituent weights may be found at [stox.com/download/indices/factsheets/SX5GT.pdf](http://stox.com/download/indices/factsheets/SX5GT.pdf) under “Factsheets and Methodologies” and are updated periodically.

As of April 26, 2019, the sixteen industry sectors which comprise the EURO STOXX 50<sup>®</sup> Index represent the following weights in the index: Automobiles & Parts (4.18%), Banks (10.61%), Chemicals (8.19%), Construction & Materials (2.96%), Food & Beverage (4.50%), Health Care (9.13%), Industrial Goods & Services (10.89%), Insurance (6.91%), Media (0.99%), Oil & Gas (6.74%), Personal & Household Goods (10.79%), Real Estate (0.86%), Retail (3.77%), Technology (10.36%), Telecommunications (4.49%), and Utilities (4.61%); industry weightings may be found at [stox.com/download/indices/factsheets/SX5GT.pdf](http://stox.com/download/indices/factsheets/SX5GT.pdf) under “Factsheets and Methodologies” and are updated periodically. Percentages may not sum to 100% due to rounding. Sector designations are determined by the underlying index sponsor using criteria it has selected or developed. Index sponsors may use very different standards for determining sector designations. In addition, many companies operate in a number of sectors, but are listed in only one sector and the basis on which that sector is selected may also differ. As a result, sector comparisons between indices with different index sponsors may reflect differences in methodology as well as actual differences in the sector composition of the indices.

As of April 26, 2019, the eight countries which comprise the EURO STOXX 50<sup>®</sup> Index represent the following weights in the index: Belgium (2.67%), Finland (1.07%), France (38.64%), Germany (31.53%), Ireland (0.99%), Italy (4.77%), Netherlands (10.29%) and Spain (10.05%); country weightings may be found at [stox.com/download/indices/factsheets/SX5GT.pdf](http://stox.com/download/indices/factsheets/SX5GT.pdf) under “Factsheets and Methodologies” and are updated periodically.

#### EURO STOXX 50<sup>®</sup> Index Composition.

The EURO STOXX 50<sup>®</sup> Index is composed of 50 index stocks chosen by STOXX Limited from the 19 EURO STOXX Supersector indices, which represent the Eurozone portion of the STOXX Europe 600 Supersector indices. The 19 supersectors from which stocks are selected for the EURO STOXX 50<sup>®</sup> Index are Automobiles & Parts, Banks, Basic Resources, Chemicals, Construction & Materials, Financial Services, Food & Beverages, Health Care, Industrial Goods & Services, Insurance, Media, Oil & Gas, Personal & Household Goods, Real Estate, Retail, Technology, Telecommunications, Travel & Leisure and Utilities, although stocks from each of these supersectors are not necessarily included at a given time.

#### Component Selection

The composition of the EURO STOXX 50<sup>®</sup> Index is reviewed by STOXX Limited annually in September. Within each of the 19 EURO STOXX Supersector indices, the respective index component stocks are ranked by free-float market capitalization. The largest stocks are added to the selection list until the coverage is close to, but still less than, 60% of the free-float market capitalization of the corresponding EURO STOXX Total Market Index Supersector Index. If the next highest-ranked stock brings the coverage closer to 60% in absolute terms, then it is also added to the selection list. All remaining stocks that are current EURO STOXX 50<sup>®</sup> Index components are then added to the selection list. The stocks on the selection list are then ranked by free-float market capitalization. The 40 largest stocks

on the selection list are chosen as index components. The remaining 10 stocks are then selected from the largest current stocks ranked between 41 and 60. If the number of index components is still below 50, then the largest remaining stocks on the selection list are added until the EURO STOXX 50® Index contains 50 stocks. In exceptional cases, the STOXX Limited Management Board may make additions and deletions to the selection list.

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### Ongoing Maintenance of Component Stocks

The component stocks of the EURO STOXX 50<sup>®</sup> Index are monitored on an ongoing monthly basis for deletion and quarterly basis for addition. Changes to the composition of the EURO STOXX 50<sup>®</sup> Index due to corporate actions (including mergers and takeovers, spin-offs, sector changes and bankruptcy) are announced immediately, implemented two trading days later and become effective on the next trading day after implementation.

The component stocks of the EURO STOXX 50<sup>®</sup> Index are subject to a “fast exit” rule. A component stock is deleted if it ranks 75 or below on the monthly selection list and it ranked 75 or below on the selection list of the previous month. The highest-ranked non-component stock will replace the exiting component stock. The EURO STOXX 50<sup>®</sup> Index is also subject to a “fast entry” rule. All stocks on the latest selection lists and initial public offering (IPO) stocks are reviewed for a fast-track addition on a quarterly basis. A stock is added if it qualifies for the latest blue-chip selection list generated at the end of February, May, August or November and if it ranks within the lower buffer (between 1 and 25) on the selection list. If added, the stock replaces the smallest component stock.

A deleted stock is replaced immediately to maintain the fixed number of stocks. The replacement is based on the latest monthly selection list. In the case of a merger or takeover where a component stock is involved, the original component stock is replaced by the new component stock. In the case of a spin-off, if the original stock was a component stock, then each spin-off stock qualifies for addition if it lies within the lower buffer (between 1 and 40) on the latest selection list. The largest qualifying spin-off stock replaces the original component stock, while the next qualifying spin-off stock replaces the lowest ranked component stock and likewise for other qualifying spin-off stocks.

The free float factors and outstanding number of shares for each index stock that STOXX Limited uses to calculate the EURO STOXX 50<sup>®</sup> Index, as described below, are reviewed, calculated and implemented on a quarterly basis and are fixed until the next quarterly review. Certain extraordinary adjustments to the free float factors and/or the number of outstanding shares are implemented and made effective more quickly. The timing depends on the magnitude of the change. Each component’s weight is capped at 10% of the EURO STOXX 50<sup>®</sup> Index’s total free float market capitalization. The free float factor reduces the index stock’s number of shares to the actual amount available on the market. All holdings that are larger than five percent of the total outstanding number of shares and held on a long-term basis are excluded from the index calculation (including, but not limited to, stock owned by the company itself, stock owned by governments, stock owned by certain individuals or families, and restricted shares).

### Index Calculation

STOXX Limited calculates the EURO STOXX 50<sup>®</sup> Index using the “Laspeyres formula,” which measures the aggregate price changes in the index stocks against a fixed base quantity weight. The discussion below describes the “price return” calculation of the EURO STOXX 50<sup>®</sup> Index.

The formula for calculating the EURO STOXX 50<sup>®</sup> Index value can be expressed as follows:

$$\text{EURO STOXX 50}^{\text{®}} \text{ Index} = \frac{\text{Free Float Market Capitalization of the EURO STOXX 50}^{\text{®}} \text{ Index}}{\text{Divisor}}$$

The “free float market capitalization of the EURO STOXX 50<sup>®</sup> Index” is equal to the sum of the product of the price, the number of shares, the free float factor and the weighting cap factor for each index stock as of the time the EURO STOXX 50<sup>®</sup> Index is being calculated. The index stocks trade in Euros and thus, no currency conversion is required. Where any index component stock price is unavailable on any trading day, the index sponsor will generally use the last reported price for such component stock.



In case the investability and tradability of the index and index based products is affected by an upcoming market or company event that is considered significant or “extreme” by the STOXX Management Board, the following actions or a combination of the following actions are taken. For all such changes a minimum notification period of two full trading days will be observed. The action scope may include but is not limited to:

- application of expert judgment for index component pricing data,
- adjustment of operational procedures,
- postponement of index adjustments,
- adjustment of selection lists,
- change of weights of index constituents by adjusting the number of shares, free-float factors or weighting cap-factors,
- or
- adjustment of index compositions.

EURO STOXX 50 Divisor

The EURO STOXX 50<sup>®</sup> Index is calculated using a divisor that helps to maintain the continuity of the index’s value so that corporate actions do not artificially increase or decrease the level of the EURO STOXX 50<sup>®</sup> Index.

The divisor is calculated by starting with the previous divisor in effect for the EURO STOXX 50<sup>®</sup> Index (which we call the “original divisor value”) and multiplying it by a fraction, the numerator of which is the previous free float market capitalization of the EURO STOXX 50<sup>®</sup> Index, plus or minus the difference between the closing market capitalization of the EURO STOXX 50<sup>®</sup> Index and the adjusted closing market capitalization of the EURO STOXX 50<sup>®</sup> Index, and the denominator of which is the previous free float market capitalization of the EURO STOXX 50. The adjusted free float market capitalization is calculated for stocks of companies that have experienced a corporate action of the type described below as of the time the new divisor value is being calculated using the free float market capitalization calculated with adjusted closing prices, the new number of shares, and the new free float factor minus the free float market capitalization calculated with that stock’s original closing price, number of shares, and free float factor, in each case as used in calculating the original divisor value. Errors in divisor calculation are corrected on an intraday basis if discovered on the same day the new divisor is effective. If the error is discovered later, the error is corrected on an intraday basis if feasible and only if the error is considered significant by the STOXX Limited Management Board.

#### Divisor Adjustments

STOXX Limited adjusts the divisor for the EURO STOXX 50<sup>®</sup> Index to maintain the continuity of the EURO STOXX 50<sup>®</sup> Index values across changes due to corporate actions. Changes in weights due to corporate actions are distributed proportionally across all index components and equal an investment into the portfolio. The following is a summary of the adjustments to any index stock made for corporate actions and the effect of such adjustments on the divisor, where shareholders of the index stock will receive “B” new shares for every “A” share held (where applicable) and assuming that the version of the index to which your notes are linked is the price return version. All adjusted prices consider withholding taxes based on the new shares being distributed, using “B \* (1 – withholding tax where applicable)”.

#### (1) Special cash dividend:

Adjusted price = closing price – dividend announced by the company \* (1- withholding tax if applicable)

Divisor: decreases

#### (2) Split and reverse split:

Adjusted price = closing price \* A / B

New number of shares = old number of shares \* B / A

Divisor: no change

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(3) Rights offering:

$$\text{Adjusted price} = (\text{closing price} * A + \text{subscription price} * B) / (A + B)$$

$$\text{New number of shares} = \text{old number of shares} * (A + B) / A$$

Divisor: increases

If the subscription price is not available or if the subscription price is equal to or greater than the closing price on the day before the effective date, then no adjustment is made.

Extremely dilutive rights issues having a share ratio larger or equal to 2000% ( $B/A > 20$ ) are treated as follows:

STOXX will announce the deletion of the company from the index following the standard rules for index replacements if sufficient notice of two trading days before the ex-date can be given.

The company may enter the index again at the next periodic index review, but only after the new rights issue shares have been listed.

Extremely dilutive rights issues for which two trading days' notice before the ex-date cannot be given, and all highly dilutive rights issues having a share ratio larger or equal to 200% ( $B/A > 2$ ) are treated as follows:

- The rights issue shares are included into the index with a theoretical price on the ex-date;
- The rights issue shares must be listed on an eligible stock exchange and tradable starting on the ex-date, otherwise, only a price adjustment is made and the rights are not included;
- The rights issue shares will have the same parameters as the parent company;
- The rights issue shares will be removed at the close of the day they start to trade with traded price being available; and
- The number of shares and weighting factors will be increased after the new rights issue shares have been listed.

(4) Stock dividend:

$$\text{Adjusted price} = \text{closing price} * A / (A + B)$$

$$\text{New number of shares} = \text{old number of shares} * (A + B) / A$$

Divisor: no change

(5) Stock dividend from treasury stock if treated as extraordinary dividend:

$$\text{Adjusted close} = \text{close} - \text{close} * B / (A + B)$$

Divisor: decreases

(6) Stock dividend of another company:

$$\text{Adjusted price} = (\text{closing price} * A - \text{price of other company} * B) / A$$

Divisor: decreases

(7) Return of capital and share consolidation:

Adjusted price = [closing price – capital return announced by company \* (1– withholding tax)] \* A / B

New number of shares = old number of shares \* B / A

Divisor: decreases

(8) Repurchase of shares / self-tender:

Adjusted price = [(price before tender \* old number of shares) – (tender price \* number of tendered shares)] / (old number of shares – number of tendered shares)

New number of shares = old number of shares – number of tendered shares

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Divisor: decreases

(9) Spin-off:

Adjusted price = (closing price \* A - price of spin-off shares \* B) / A

Divisor: decreases

(10) Combination stock distribution (dividend or split) and rights offering:

For this corporate action, the following additional assumptions apply:

Shareholders receive B new shares from the distribution and C new shares from the rights offering for every A share held; and

If A is not equal to one, all the following “new number of shares” formulae need to be divided by A.

If rights are applicable after stock distribution (one action applicable to another):

Adjusted price = [closing price \* A + subscription price \* C \* (1 + B / A)] / [(A + B) \* (1 + C / A)]

New number of shares = old number of shares \* [(A + B) \* (1 + C / A)] / A

Divisor: increases

If stock distribution is applicable after rights (one action applicable to another):

Adjusted price = (closing price \* A + subscription price \* C) / [(A + C) \* (1 + B / A)]

New number of shares = old number of shares \* [(A + C) \* (1 + B / A)]

Divisor: increases

Stock distribution and rights (neither action is applicable to the other):

Adjusted price = (closing price \* A + subscription price \* C) / (A + B + C)

New number of shares = old number of shares \* (A + B + C) / A

Divisor: increases

(11) Addition/deletion of a company

No price adjustments are made. The net change in market capitalization determines the divisor adjustment.

(12) Free float and shares changes

No price adjustments are made. The net change in market capitalization determines the divisor adjustment.

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• Have any responsibility or liability for or make any decisions about the timing, amount or pricing of the notes.

• Have any responsibility or liability for the administration, management or marketing of the notes.

• Consider the needs of the notes or the owners of the notes in determining, composing or calculating the EURO STOXX 50<sup>®</sup> Index or have any obligation to do so.

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- STOXX and its Licensors do not make any warranty, express or implied and disclaim any and all warranty about:
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- The accuracy or completeness of the EURO STOXX 50<sup>®</sup> Index and its data;
- The merchantability and the fitness for a particular purpose or use of the EURO STOXX 50<sup>®</sup> Index and its data;
- STOXX and its Licensors will have no liability for any errors, omissions or interruptions in the EURO STOXX 50<sup>®</sup> Index or its data;
- Under no circumstances will STOXX or its Licensors be liable for any lost profits or indirect, punitive, special or consequential damages or losses, even if STOXX or its Licensors knows that they might occur.

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### Historical Closing Levels of the Indices

The closing levels of the indices have fluctuated in the past and may, in the future, experience significant fluctuations. Any historical upward or downward trend in the closing level of any index during the period shown below is not an indication that such index is more or less likely to increase or decrease at any time during the life of your notes.

You should not take the historical closing levels of an index as an indication of the future performance of an index. We cannot give you any assurance that the future performance of any index or the index stocks will result in you receiving any coupon payments or receiving the outstanding face amount of your notes on the stated maturity date.

Neither we nor any of our affiliates make any representation to you as to the performance of the indices. Before investing in the offered notes, you should consult publicly available information to determine the relevant index levels between the date of this document and the date of your purchase of the offered notes. The actual performance of an index over the life of the offered notes, as well as the cash settlement amount at maturity may bear little relation to the historical levels shown below.

The graphs below show the daily historical closing levels of each index from May 1, 2009 through May 1, 2019. As a result, the following graphs do not reflect the global financial crisis which began in 2008, which had a materially negative impact on the price of most equity securities and, as a result, the level of most equity indices. We obtained the closing levels in the graphs below from Bloomberg Financial Services, without independent verification. Although the official closing levels of the Russell 2000<sup>®</sup> Index are

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published to six decimal places by the index sponsor, Bloomberg Financial Services reports the levels of the Russell 2000® Index to fewer decimal places.

Historical Performance of the S&P 500® Index

Historical Performance of the EURO STOXX 50® Index

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## Historical Performance of the Russell 2000® Index

### Correlation of the Indices

The graph below shows the historical closing levels of each index from May 1, 2009 through May 1, 2019. For comparison purposes, each index has been adjusted to have a closing level of 100.00 on May 1, 2009 by dividing the closing level of that index on each day by the closing level of that index on May 1, 2009 and multiplying by 100.00. We obtained the closing levels used to determine the adjusted closing levels in the graph below from Bloomberg Financial Services, without independent verification. You should not take the historical performance of the indices as an indication of the future performance of the indices.

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Movements in the values of the indices may be correlated or uncorrelated at different times during the term of the notes and, if there is correlation, such correlation may be positive (the indices move in the same direction) or negative (the indices move in reverse directions). The more similar the movements of the daily returns of the indices over the given period, the more positively correlated those indices are. The graph above illustrates the historical performance of each index relative to the other indices over the time period shown and provides an indication of how the relative performance of the daily returns of one index has historically been to another. However, it is the actual level of the lesser performing index (and not the level of historical correlation between the indices) that determines the return on your notes.

Please read “Additional Risk Factors Specific to Your Notes—You Are Exposed to the Market Risk of Each Index” on page S-17 of this document.

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## Supplemental Discussion of Federal Income Tax Consequences

The following section supplements the discussion of U.S. federal income taxation in the accompanying prospectus.

The following section is the opinion of Sidley Austin llp, counsel to GS Finance Corp. and The Goldman Sachs Group, Inc. In addition, it is the opinion of Sidley Austin llp that the characterization of the notes for U.S. federal income tax purposes that will be required under the terms of the notes, as discussed below, is a reasonable interpretation of current law.

This section does not apply to you if you are a member of a class of holders subject to special rules, such as:

- a dealer in securities or currencies;
- a trader in securities that elects to use a mark-to-market method of accounting for your securities holdings;
- a bank;
- a life insurance company;
- a regulated investment company;
- an accrual method taxpayer subject to special tax accounting rules as a result of its use of financial statements;
- a tax exempt organization;
- a partnership;
- a person that owns a note as a hedge or that is hedged against interest rate risks;
- a person that owns a note as part of a straddle or conversion transaction for tax purposes; or
- a United States holder (as defined below) whose functional currency for tax purposes is not the U.S. dollar.

Although this section is based on the U.S. Internal Revenue Code of 1986, as amended, its legislative history, existing and proposed regulations under the Internal Revenue Code, published rulings and court decisions, all as currently in effect, no statutory, judicial or administrative authority directly discusses how your notes should be treated for U.S. federal income tax purposes, and as a result, the U.S. federal income tax consequences of your investment in your notes are uncertain. Moreover, these laws are subject to change, possibly on a retroactive basis.

You should consult your tax advisor concerning the U.S. federal income tax and other tax consequences of your investment in the notes, including the application of state, local or other tax laws and the possible effects of changes in federal or other tax laws.

### United States Holders

This section applies to you only if you are a United States holder that holds your notes as a capital asset for tax purposes. You are a United States holder if you are a beneficial owner of a note and you are:

- a citizen or resident of the United States;
- a domestic corporation;
- an estate whose income is subject to U.S. federal income tax regardless of its source; or

a trust if a United States court can exercise primary supervision over the trust's administration and one or more United States persons are authorized to control all substantial decisions of the trust.

Tax Treatment. You will be obligated pursuant to the terms of the notes — in the absence of a change in law, an administrative determination or a judicial ruling to the contrary — to characterize your notes for all tax purposes as income-bearing pre-paid derivative contracts in respect of the indices. Except as otherwise stated below, the discussion below assumes that the notes will be so treated.

Coupon payments that you receive should be included in ordinary income at the time you receive the payment or when the payment accrues, in accordance with your regular method of accounting for U.S. federal income tax purposes.

Upon the sale, exchange, redemption or maturity of your notes, you should recognize capital gain or loss equal to the difference between the amount realized on the sale, exchange, redemption or maturity (excluding any amounts attributable to accrued and unpaid coupon payments, which will be taxable as described above) and your tax basis in your notes. Your tax basis in your notes will generally be equal to the amount that you paid for the notes. Such capital gain or loss should generally be short-term capital gain or loss if you hold the notes for one year or less, and should be long-term capital gain or loss if you hold the notes for more than one year. Short-term capital gains are generally subject to tax at the marginal tax rates applicable to ordinary income.

No statutory, judicial or administrative authority directly discusses how your notes should be treated for U.S. federal income tax purposes. As a result, the U.S. federal income tax consequences of your investment in the notes are uncertain and alternative characterizations are possible. Accordingly, we urge you to consult your tax advisor in determining the tax consequences of an investment in your notes in your particular circumstances, including the application of state, local or other tax laws and the possible effects of changes in federal or other tax laws.

Alternative Treatments. There is no judicial or administrative authority discussing how your notes should be treated for U.S. federal income tax purposes. Therefore, the Internal Revenue Service might assert that a treatment other than that described above is more appropriate. For example, the Internal Revenue Service could treat your notes as a single debt instrument subject to special rules governing contingent payment debt instruments.

Under those rules, the amount of interest you are required to take into account for each accrual period would be determined by constructing a projected payment schedule for the notes and applying rules similar to those for accruing original issue discount on a hypothetical noncontingent debt instrument with that projected payment schedule. This method is applied by first determining the comparable yield — i.e., the yield at which we would issue a noncontingent fixed rate debt instrument with terms and conditions similar to your notes — and then determining a payment schedule as of the applicable original issue date that would produce the comparable yield. These rules may have the effect of requiring you to include interest in income in respect of your notes prior to your receipt of cash attributable to that income.

If the rules governing contingent payment debt instruments apply, any income you recognize upon the sale, exchange, redemption or maturity of your notes would be treated as ordinary interest income. Any loss you recognize at that time would be treated as ordinary loss to the extent of interest you included as income in the current or previous taxable years in respect of your notes, and, thereafter, as capital loss.

If the rules governing contingent payment debt instruments apply, special rules would apply to persons who purchase a note at other than the adjusted issue price as determined for tax purposes.

It is possible that the Internal Revenue Service could assert that your notes should generally be characterized as described above, except that (1) the gain you recognize upon the sale, exchange, redemption or maturity of your notes

should be treated as ordinary income or (2) you should not include the coupon payments in income as you receive them but instead you should reduce your basis in your notes by the amount of coupon payments that you receive. It is also possible that the Internal Revenue Service could seek to characterize your notes in a manner that results in tax consequences to you different from those described above.

It is also possible that the Internal Revenue Service could seek to characterize your notes as notional

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principal contracts. It is also possible that the coupon payments would not be treated as either ordinary income or interest for U.S. federal income tax purposes, but instead would be treated in some other manner.

You should consult your tax advisor as to possible alternative characterizations of your notes for U.S. federal income tax purposes.

#### Possible Change in Law

In 2007, legislation was introduced in Congress that, if enacted, would have required holders that acquired instruments such as your notes after the bill was enacted to accrue interest income over the term of such instruments. It is not possible to predict whether a similar or identical bill will be enacted in the future, or whether any such bill would affect the tax treatment of your notes.

In addition, on December 7, 2007, the Internal Revenue Service released a notice stating that the Internal Revenue Service and the Treasury Department are actively considering issuing guidance regarding the proper U.S. federal income tax treatment of an instrument such as the offered notes including whether the holders should be required to accrue ordinary income on a current basis and whether gain or loss should be ordinary or capital. It is not possible to determine what guidance they will ultimately issue, if any. It is possible, however, that under such guidance, holders of the notes will ultimately be required to accrue income currently and this could be applied on a retroactive basis. The Internal Revenue Service and the Treasury Department are also considering other relevant issues, including whether foreign holders of such instruments should be subject to withholding tax on any deemed income accruals and whether the special “constructive ownership rules” of Section 1260 of the Internal Revenue Code might be applied to such instruments. Except to the extent otherwise provided by law, GS Finance Corp. intends to continue treating the notes for U.S. federal income tax purposes in accordance with the treatment described above unless and until such time as Congress, the Treasury Department or the Internal Revenue Service determine that some other treatment is more appropriate.

It is impossible to predict what any such legislation or administrative or regulatory guidance might provide, and whether the effective date of any legislation or guidance will affect notes that were issued before the date that such legislation or guidance is issued. You are urged to consult your tax advisor as to the possibility that any legislative or administrative action may adversely affect the tax treatment of your notes.

#### United States Alien Holders

This section applies to you only if you are a United States alien holder. You are a United States alien holder if you are the beneficial owner of the notes and are, for U.S. federal income tax purposes:

- a nonresident alien individual;
- a foreign corporation; or
- an estate or trust that in either case is not subject to U.S. federal income tax on a net income basis on income or gain from the notes.

Because the U.S. federal income tax treatment (including the applicability of withholding) of the coupon payments on the notes is uncertain, in the absence of further guidance, we intend to withhold on the coupon payments made to you at a 30% rate or at a lower rate specified by an applicable income tax treaty under an “other income” or similar provision. We will not make payments of any additional amounts. To claim a reduced treaty rate for withholding, you generally must provide a valid Internal Revenue Service Form W-8BEN, Internal Revenue Service Form W-8BEN-E, or an acceptable substitute form upon which you certify, under penalty of perjury, your status as a United States alien holder and your entitlement to the lower treaty rate. Payments will be made to you at a reduced treaty rate of withholding only if such reduced treaty rate would apply to any possible characterization of the payments (including,

for example, if the coupon payments were characterized as contract fees). Withholding also may not apply to coupon payments made to you if: (i) the coupon payments are “effectively connected” with your conduct of a trade or business in the United States and are includable in your gross income for U.S. federal income tax purposes, (ii) the coupon payments are attributable to a permanent establishment that you maintain in the United States, if required by an applicable tax treaty, and (iii) you comply with the

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requisite certification requirements (generally, by providing an Internal Revenue Service Form W-8ECI). If you are eligible for a reduced rate of United States withholding tax, you may obtain a refund of any amounts withheld in excess of that rate by filing a refund claim with the Internal Revenue Service.

“Effectively connected” payments includable in your United States gross income are generally taxed at rates applicable to United States citizens, resident aliens, and domestic corporations; if you are a corporate United States alien holder, “effectively connected” payments may be subject to an additional “branch profits tax” under certain circumstances.

You will also be subject to generally applicable information reporting and backup withholding requirements with respect to payments on your notes and, notwithstanding that we do not intend to treat the notes as debt for tax purposes, we intend to backup withhold on such payments with respect to your notes unless you comply with the requirements necessary to avoid backup withholding on debt instruments (in which case you will not be subject to such backup withholding) as set forth under “United States Taxation – Taxation of Debt Securities – United States Alien Holders” in the accompanying prospectus.

Furthermore, on December 7, 2007, the Internal Revenue Service released Notice 2008-2 soliciting comments from the public on various issues, including whether instruments such as your notes should be subject to withholding. It is therefore possible that rules will be issued in the future, possibly with retroactive effects, that would cause payments on your notes to be subject to withholding, even if you comply with certification requirements as to your foreign status.

As discussed above, alternative characterizations of the notes for U.S. federal income tax purposes are possible. Should an alternative characterization of the notes, by reason of a change or clarification of the law, by regulation or otherwise, cause payments with respect to the notes to become subject to withholding tax, we will withhold tax at the applicable statutory rate and we will not make payments of any additional amounts. Prospective United States alien holders of the notes should consult their tax advisors in this regard.

In addition, the Treasury Department has issued regulations under which amounts paid or deemed paid on certain financial instruments (“871(m) financial instruments”) that are treated as attributable to U.S.-source dividends could be treated, in whole or in part depending on the circumstances, as a “dividend equivalent” payment that is subject to tax at a rate of 30% (or a lower rate under an applicable treaty), which in the case of any coupon payments and any amounts you receive upon the sale, exchange, redemption or maturity of your notes, could be collected via withholding. If these regulations were to apply to the notes, we may be required to withhold such taxes if any U.S.-source dividends are paid on the stocks included in the indices during the term of the notes. We could also require you to make certifications (e.g., an applicable Internal Revenue Service Form W-8) prior to any coupon payment or the maturity of the notes in order to avoid or minimize withholding obligations, and we could withhold accordingly (subject to your potential right to claim a refund from the Internal Revenue Service) if such certifications were not received or were not satisfactory. If withholding was required, we would not be required to pay any additional amounts with respect to amounts so withheld. These regulations generally will apply to 871(m) financial instruments (or a combination of financial instruments treated as having been entered into in connection with each other) issued (or significantly modified and treated as retired and reissued) on or after January 1, 2021, but will also apply to certain 871(m) financial instruments (or a combination of financial instruments treated as having been entered into in connection with each other) that have a delta (as defined in the applicable Treasury regulations) of one and are issued (or significantly modified and treated as retired and reissued) on or after January 1, 2017. In addition, these regulations will not apply to financial instruments that reference a “qualified index” (as defined in the regulations). We have determined that, as of the issue date of your notes, your notes will not be subject to withholding under these rules. In certain limited circumstances, however, you should be aware that it is possible for United States alien holders to be liable for tax under these rules with respect to a combination of transactions treated as having been entered into in connection with each other even when no withholding is required. You should consult your tax advisor concerning these regulations,

subsequent official guidance and regarding any other possible alternative characterizations of your notes for U.S. federal income tax purposes.

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#### Foreign Account Tax Compliance Act (FATCA) Withholding

Pursuant to Treasury regulations, Foreign Account Tax Compliance Act (FATCA) withholding (as described in “United States Taxation—Taxation of Debt Securities—Foreign Account Tax Compliance Act (FATCA) Withholding” in the accompanying prospectus) will generally apply to obligations that are issued on or after July 1, 2014; therefore, the notes will generally be subject to the FATCA withholding rules. Pursuant to recently proposed regulations, the Treasury Department has indicated its intent to eliminate the requirements under FATCA of withholding on gross proceeds from the sale, exchange, maturity or other disposition of relevant financial instruments. The Treasury Department has indicated that taxpayers may rely on these proposed regulations pending their finalization.

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#### Employee Retirement Income Security Act

This section is only relevant to you if you are an insurance company or the fiduciary of a pension plan or an employee benefit plan (including a governmental plan, an IRA or a Keogh Plan) proposing to invest in the notes.

The U.S. Employee Retirement Income Security Act of 1974, as amended (“ERISA”) and the U.S. Internal Revenue Code of 1986, as amended (the “Code”), prohibit certain transactions (“prohibited transactions”) involving the assets of an employee benefit plan that is subject to the fiduciary responsibility provisions of ERISA or Section 4975 of the Code (including individual retirement accounts, Keogh plans and other plans described in Section 4975(e)(1) of the Code) (a “Plan”) and certain persons who are “parties in interest” (within the meaning of ERISA) or “disqualified persons” (within the meaning of the Code) with respect to the Plan; governmental plans may be subject to similar prohibitions unless an exemption applies to the transaction. The assets of a Plan may include assets held in the general account of an insurance company that are deemed “plan assets” under ERISA or assets of certain investment vehicles in which the Plan invests. Each of The Goldman Sachs Group, Inc. and certain of its affiliates may be considered a “party in interest” or a “disqualified person” with respect to many Plans, and, accordingly, prohibited transactions may arise if the notes are acquired by or on behalf of a Plan unless those notes are acquired and held pursuant to an available exemption. In general, available exemptions are: transactions effected on behalf of that Plan by a “qualified professional asset manager” (prohibited transaction exemption 84-14) or an “in-house asset manager” (prohibited transaction exemption 96-23), transactions involving insurance company general accounts (prohibited transaction exemption 95-60), transactions involving insurance company pooled separate accounts (prohibited transaction exemption 90 1), transactions involving bank collective investment funds (prohibited transaction exemption 91-38) and transactions with service providers under Section 408(b)(17) of ERISA and Section 4975(d)(20) of the Code where the Plan receives no less and pays no more than “adequate consideration” (within the meaning of Section 408(b)(17) of ERISA and Section 4975(f)(10) of the Code). The person making the decision on behalf of a Plan or a governmental plan shall be deemed, on behalf of itself and the plan, by purchasing and holding the notes, or exercising any rights related thereto, to represent that (a) the plan will receive no less and pay no more than “adequate consideration” (within the meaning of Section 408(b)(17) of ERISA and Section 4975(f)(10) of the Code) in connection with the purchase and holding of the notes, (b) none of the purchase, holding or disposition of the notes or the exercise of any rights related to the notes will result in a nonexempt prohibited transaction under ERISA or the Code (or, with respect to a governmental plan, under any similar applicable law or regulation), and (c) neither The Goldman Sachs Group, Inc. nor any of its affiliates is a “fiduciary” (within the meaning of Section 3(21) of ERISA) or, with respect to a governmental plan, under any similar applicable law or regulation) with respect to the purchaser or holder in connection with such person's acquisition, disposition or holding of the notes, or as a result of any exercise by The Goldman Sachs Group, Inc. or any of its affiliates of any rights in connection with the notes, and neither The Goldman Sachs Group, Inc. nor any of its affiliates has provided investment advice in connection with such person's acquisition, disposition or holding of the notes.

If you are an insurance company or the fiduciary of a pension plan or an employee benefit plan (including a governmental plan, an IRA or a Keogh plan), and propose to invest in the notes, you should consult your legal counsel.

### Supplemental Plan of Distribution

GS Finance Corp. expects to agree to sell to GS&Co., and GS&Co. expects to agree to purchase from GS Finance Corp., the aggregate face amount of the offered notes specified on the front cover of this document. GS&Co. proposes initially to offer the notes to the public at the original issue price set forth on the cover page of this document, and to UBS Financial Services Inc. at such price less a concession not in excess of 1.00% of the face amount.

In connection with the initial offering of the notes, the minimum face amount of notes that may be purchased by any investor is \$1,000.

In the future, GS&Co. or other affiliates of GS Finance Corp. may repurchase and resell the offered notes in market-making transactions, with resales being made at prices related to prevailing market prices at the time of resale or at negotiated prices. GS Finance Corp. estimates that its share of the total offering expenses, excluding underwriting discounts and commissions, will be approximately \$ . For more information about the plan of distribution and possible market-making activities, see “Plan of Distribution” in the accompanying prospectus.

We expect to deliver the notes against payment therefor in New York, New York on May 8, 2019. Under Rule 15c6-1 of the Securities Exchange Act of 1934, trades in the secondary market generally are required to settle in two business days, unless the parties to any such trade expressly agree otherwise. Accordingly, purchasers who wish to trade notes on any date prior to two business days before delivery will be required to specify alternative settlement arrangements to prevent a failed settlement.

We have been advised by GS&Co. that it intends to make a market in the notes. However, neither GS&Co. nor any of our other affiliates that makes a market is obligated to do so and any of them may stop doing so at any time without notice. No assurance can be given as to the liquidity or trading market for the notes.

Any notes which are the subject of the offering contemplated by this prospectus supplement, the accompanying prospectus and the accompanying prospectus supplement may not be offered, sold or otherwise made available to any retail investor in the European Economic Area. Consequently no key information document required by Regulation (EU) No 1286/2014 (the “PRIIPs Regulation”) for offering or selling the notes or otherwise making them available to retail investors in the EEA has been prepared and therefore offering or selling the notes or otherwise making them available to any retail investor in the EEA may be unlawful under the PRIIPs Regulation. For the purposes of this provision:

- (a) the expression “retail investor” means a person who is one (or more) of the following:
  - (i) a retail client as defined in point (11) of Article 4(1) of Directive 2014/65/EU (as amended, “MiFID II”); or
  - (ii) a customer within the meaning of Directive 2002/92/EC (as amended, the “Insurance Mediation Directive”), where that customer would not qualify as a professional client as defined in point (10) of Article 4(1) of MiFID II; or
  - (iii) not a qualified investor as defined in Directive 2003/71/EC (as amended, the “Prospectus Directive”); and
- (b) the expression an “offer” includes the communication in any form and by any means of sufficient information on the terms of the offer and the notes to be offered so as to enable an investor to decide to purchase or subscribe for the

notes.

In relation to each Member State of the European Economic Area which has implemented the Prospectus Directive (each, a “Relevant Member State”), GS&Co. has represented and agreed that with effect from and including the date on which the Prospectus Directive is implemented in that Relevant Member State (the “Relevant Implementation Date”) it has not made and will not make an offer of notes which are the subject of the offering contemplated by this document, the accompanying prospectus and the accompanying prospectus supplement to the public in that Relevant Member State except that, with effect from and including the Relevant Implementation Date, an offer of such notes may be made to the public in that Relevant Member State:

- (a) at any time to any legal entity which is a qualified investor as defined in the Prospectus Directive;
- (b) at any time to fewer than 150 natural or legal persons (other than qualified investors as defined in the Prospectus Directive), subject to obtaining the prior consent of the relevant dealer or dealers nominated by the issuer for any such offer; or
- (c) at any time in any other circumstances falling within Article 3(2) of the Prospectus Directive,

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provided that no such offer of notes referred to above shall require us or any dealer to publish a prospectus pursuant to Article 3 of the Prospectus Directive.

For the purposes of this provision, the expression an “offer of notes to the public” in relation to any notes in any Relevant Member State means the communication in any form and by any means of sufficient information on the terms of the offer and the notes to be offered so as to enable an investor to decide to purchase or subscribe for the notes, as the same may be varied in that Member State by any measure implementing the Prospectus Directive in that Member State and the expression “Prospectus Directive” means Directive 2003/71/EC (as amended, including by Directive 2010/73/EU), and includes any relevant implementing measure in the Relevant Member State.

Any invitation or inducement to engage in investment activity (within the meaning of Section 21 of the FSMA) in connection with the issue or sale of the notes may only be communicated or caused to be communicated in circumstances in which Section 21(1) of the FSMA does not apply to GS Finance Corp. or The Goldman Sachs Group, Inc.

All applicable provisions of the FSMA must be complied with in respect to anything done by any person in relation to the notes in, from or otherwise involving the United Kingdom.

The notes may not be offered or sold in Hong Kong by means of any document other than (i) to “professional investors” as defined in the Securities and Futures Ordinance (Cap. 571 of the Laws of Hong Kong) and any rules made thereunder, or (ii) in other circumstances which do not result in the document being a “prospectus” as defined in the Companies (Winding Up and Miscellaneous Provisions) Ordinance (Cap. 32 of the Laws of Hong Kong) or which do not constitute an offer to the public within the meaning of that Ordinance; and no advertisement, invitation or document relating to the notes may be issued or may be in the possession of any person for the purpose of issue (in each case whether in Hong Kong or elsewhere) which is directed at, or the contents of which are likely to be accessed or read by, the public in Hong Kong (except if permitted to do so under the securities laws of Hong Kong) other than with respect to the notes which are or are intended to be disposed of only to persons outside Hong Kong or only to “professional investors” as defined in the Securities and Futures Ordinance and any rules made thereunder.

This document, along with the accompanying prospectus supplement and the accompanying prospectus have not been registered as a prospectus with the Monetary Authority of Singapore. Accordingly, this document, along with the accompanying prospectus supplement and the accompanying prospectus and any other document or material in connection with the offer or sale, or invitation for subscription or purchase, of the notes may not be circulated or distributed, nor may the notes be offered or sold, or be made the subject of an invitation for subscription or purchase, whether directly or indirectly, to persons in Singapore other than (i) to an institutional investor (as defined in Section 4A of the Securities and Futures Act, Chapter 289 of Singapore (the “SFA”)) under Section 274 of the SFA, (ii) to a relevant person (as defined in Section 275(2) of the SFA) pursuant to Section 275(1) of the SFA, or any person pursuant to Section 275(1A) of the SFA, and in accordance with the conditions specified in Section 275 of the SFA or (iii) otherwise pursuant to, and in accordance with the conditions of, any other applicable provision of the SFA, in each case subject to conditions set forth in the SFA.

Where the notes are subscribed or purchased under Section 275 of the SFA by a relevant person which is a corporation (which is not an accredited investor (as defined in Section 4A of the SFA)) the sole business of which is to hold investments and the entire share capital of which is owned by one or more individuals, each of whom is an accredited investor, the securities (as defined in Section 239(1) of the SFA) of that corporation shall not be transferable for six months after that corporation has acquired the notes under Section 275 of the SFA except: (1) to an institutional investor under Section 274 of the SFA or to a relevant person (as defined in Section 275(2) of the SFA), (2) where such transfer arises from an offer in that corporation’s securities pursuant to Section 275(1A) of the SFA, (3) where no consideration is or will be given for the transfer, (4) where the transfer is by operation of law, (5) as specified in

Section 276(7) of the SFA, or (6) as specified in Regulation 32 of the Securities and Futures (Offers of Investments) (Shares and Debentures) Regulations 2005 of Singapore (“Regulation 32”).

Where the notes are subscribed or purchased under Section 275 of the SFA by a relevant person which is a trust (where the trustee is not an accredited investor (as defined in Section 4A of the SFA)) whose sole purpose is to hold investments and each beneficiary of the trust is an accredited investor, the beneficiaries’ rights and interest (howsoever described) in that trust shall not be transferable for six months after that trust has acquired the notes under Section 275 of the SFA except: (1) to an institutional investor under Section 274 of the SFA or to a relevant person (as defined in Section 275(2) of the SFA), (2) where such transfer arises from an offer that is made on terms that such rights or interest are acquired at a consideration of not less than S\$200,000 (or its equivalent in a foreign currency) for each transaction (whether such amount is to be paid for in cash or by exchange of securities or other assets), (3) where no consideration is or will be given for the transfer, (4) where the transfer is by operation of law, (5) as specified in Section 276(7) of the SFA, or (6) as specified in Regulation 32.

The notes have not been and will not be registered under the Financial Instruments and Exchange Act of Japan (Act No. 25 of 1948, as amended), or the FIEA. The notes may not be offered or sold, directly or indirectly, in Japan

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or to or for the benefit of any resident of Japan (including any person resident in Japan or any corporation or other entity organized under the laws of Japan) or to others for reoffering or resale, directly or indirectly, in Japan or to or for the benefit of any resident of Japan, except pursuant to an exemption from the registration requirements of the FIEA and otherwise in compliance with any relevant laws and regulations of Japan.

The notes are not offered, sold or advertised, directly or indirectly, in, into or from Switzerland on the basis of a public offering and will not be listed on the SIX Swiss Exchange or any other offering or regulated trading facility in Switzerland. Accordingly, neither this document nor any accompanying prospectus supplement, prospectus or other marketing material constitute a prospectus as defined in article 652a or article 1156 of the Swiss Code of Obligations or a listing prospectus as defined in article 32 of the Listing Rules of the SIX Swiss Exchange or any other regulated trading facility in Switzerland. Any resales of the notes by the underwriters thereof may only be undertaken on a private basis to selected individual investors in compliance with Swiss law. This document and accompanying prospectus and prospectus supplement may not be copied, reproduced, distributed or passed on to others or otherwise made available in Switzerland without our prior written consent. By accepting this document and accompanying prospectus and prospectus supplement or by subscribing to the notes, investors are deemed to have acknowledged and agreed to abide by these restrictions. Investors are advised to consult with their financial, legal or tax advisers before investing in the notes.

#### Conflicts of Interest

GS&Co. is an affiliate of GS Finance Corp. and The Goldman Sachs Group, Inc. and, as such, will have a “conflict of interest” in this offering of notes within the meaning of Financial Industry Regulatory Authority, Inc. (FINRA) Rule 5121. Consequently, this offering of notes will be conducted in compliance with the provisions of FINRA Rule 5121. GS&Co. will not be permitted to sell notes in this offering to an account over which it exercises discretionary authority without the prior specific written approval of the account holder.

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We have not authorized anyone to provide any information or to make any representations other than those contained or incorporated by reference in this prospectus supplement, the accompanying prospectus supplement and the accompanying prospectus. We take no responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you. This prospectus supplement, the accompanying prospectus supplement and the accompanying prospectus is an offer to sell only the notes offered hereby, but only under the circumstances and in jurisdictions where it is lawful to do so. The information contained in this prospectus supplement, the accompanying prospectus supplement and the accompanying prospectus is current only as of the respective dates of such documents.

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GS Finance Corp.

Trigger Callable Contingent Yield Notes due

guaranteed by

The Goldman Sachs Group, Inc.

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Goldman Sachs & Co. LLC

UBS Financial Services Inc.

Selling Agent