



GS Finance Corp.  
Medium-Term Notes, Series F  
guaranteed by

The Goldman Sachs Group, Inc.

S&P 500® Futures Volatility Plus Daily Risk Control Index

Overview

This section constitutes only a brief overview of the S&P 500® Futures Volatility Plus Daily Risk Control Index. The index is described in more detail under “The Underliers — S&P 500® Futures Volatility Plus Daily Risk Control Index” in the underlier supplement referred to in “About This Index Supplement” below.

The S&P 500® Futures Volatility Plus Daily Risk Control Index (current Bloomberg symbol: “SPXFVPRE Index”), which we also refer to in this index supplement as the “index,” is designed to provide leveraged exposure to the S&P 500® Futures Excess Return Index based on a dynamic volatility target, subject to a minimum exposure of 100% and a maximum exposure of 200%. The S&P 500® Futures Excess Return Index measures the performance of the nearest maturing quarterly E-mini S&P 500 futures contract trading on the Chicago Mercantile Exchange. The S&P 500® Index includes a representative sample of 500 companies in leading industries of the U.S. economy. The index has a base date of February 4, 1998, with a base value of 100, as adjusted, and is calculated, maintained and published by S&P Dow Jones Indices LLC. We have derived all information contained in this index supplement regarding the index from publicly available information. Additional information about the index is available on the following website: [spglobal.com/spdji/en/indices/strategy/sp-500-futures-volatility-plus-daily-risk-control-index](https://spglobal.com/spdji/en/indices/strategy/sp-500-futures-volatility-plus-daily-risk-control-index). We are not incorporating by reference the website or any material it includes in this index supplement.

Quick Facts

Sponsor	S&P Dow Jones Indices LLC
Calculation Agent	S&P Dow Jones Indices LLC
Index Currency	USD
Reuters Ticker	.SPXFVPRE
Bloomberg Ticker	SPXFVPRE
Rebalancing	Daily
Index Members	Variable
Geographical Coverage	US
Type	Excess Return
Launch Date	April 25, 2022
History Available Since	February 4, 1998

Historical Performance

The graph below shows the daily historical closing levels of the index from January 2, 2020 through March 3, 2025 (using hypothetical performance data and historical closing levels). As a result, the below graph does 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. Since the S&P 500® Futures Volatility Plus Daily Risk Control Index was launched on April 25, 2022 and has a limited operating history, the graph includes hypothetical performance data for the S&P 500® Futures Volatility Plus Daily Risk Control Index prior to its launch of April 25, 2022. The hypothetical performance data prior to April 25, 2022 was obtained from the index sponsor’s website, without independent verification. The daily historical closing levels from April 25, 2022 to March 3, 2025 were obtained from Bloomberg Financial Services, without independent verification. (In the graph, historical closing levels can be found to the right of the vertical solid line marker.) **You should not take the hypothetical performance data or historical levels of the index as an indication of its future performance.**

Annualized Return and Annualized Volatility

The following table provides the annualized return and annualized volatility of the index for each applicable period ended March 3, 2025 (using hypothetical performance data and historical closing levels, as described above). Annualized return represents the average rate of return per annum, calculated as the geometric average of the percentage change of the index during the applicable time period. Annualized volatility is a measure of the historical variability of returns, and is calculated as the square root of 252 multiplied by the sample standard deviation of the daily logarithmic returns of the index during the applicable time period. **You should not take any hypothetical or historical annualized return or annualized volatility information regarding the index as an indication of its future performance.**

		Annualized Return	Annualized Volatility
1 Year 3 Years* 5 Years* Since January 2, 2020*		11.60%	23.51%
		10.47%	26.81%
		18.32%	30.08%
		14.30%	30.46%

\* Historical information begins April 25, 2022 (the index launch date). Hypothetical performance data, which was used for all data prior to April 25, 2022, was obtained from the index sponsor’s website, without independent verification.

Your investment in securities linked to the index involves certain risks. See “Selected Risk Factors” on page S-7 to read about investment risks relating to such securities.

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 index supplement, the applicable pricing supplement, the applicable product supplement, if any, the applicable general terms supplement, if any, the accompanying underlier supplement, the accompanying prospectus supplement or the accompanying prospectus. Any representation to the contrary is a criminal offense.

The securities 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.



## March 2025 S&P 500® Futures Volatility Plus Daily Risk Control Index Supplement Dated March 21, 2025

### Comparative Performance Data

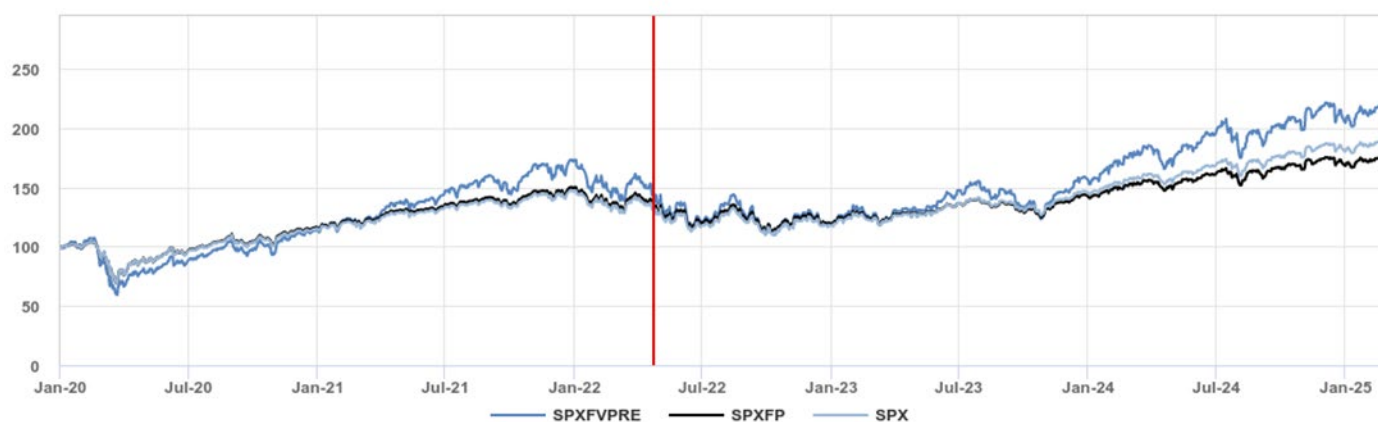
#### Index Performance Compared to the S&P 500® Futures Excess Return Index and its Parent Index

For comparative purposes, the graph below shows the performance, from January 2, 2020 through March 3, 2025, of the S&P 500® Futures Volatility Plus Daily Risk Control Index (in dark blue), the S&P 500® Futures Excess Return Index (in black) and the S&P 500® Index (in light blue).

For comparative purposes, each of the S&P 500® Futures Volatility Plus Daily Risk Control Index, the S&P 500® Futures Excess Return Index and the S&P 500® Index have been adjusted to have a closing level of 100.00 on January 2, 2020 by dividing the applicable closing level on each day by that index's closing level on January 2, 2020 and multiplying the quotient by 100.00.

Since the S&P 500® Futures Volatility Plus Daily Risk Control Index was launched on April 25, 2022 and has a limited operating history, the graph includes hypothetical performance data for the S&P 500® Futures Volatility Plus Daily Risk Control Index prior to its launch of April 25, 2022. The hypothetical performance data for the S&P 500® Futures Volatility Plus Daily Risk Control Index prior to April 25, 2022 used to create this graph was obtained from the index sponsor's website, without independent verification. The daily historical closing levels of the S&P 500® Futures Volatility Plus Daily Risk Control Index from April 25, 2022 to March 3, 2025 used to create this graph were obtained from Bloomberg Financial Services, without independent verification. (In the graph, historical closing levels can be found to the right of the vertical solid line marker.) The daily historical closing levels of the S&P 500® Futures Excess Return Index and the S&P 500® Index from January 2, 2020 through March 3, 2025 used to create this graph were obtained from Bloomberg Financial Services, without independent verification. **You should not take this graph, the hypothetical performance data or historical closing levels of the indices used to create this graph as an indication of the future performance of any index, including the S&P 500® Futures Volatility Plus Daily Risk Control Index, or the correlation (if any) between the level of the S&P 500® Futures Volatility Plus Daily Risk Control Index and the levels of the S&P 500® Futures Excess Return Index or the S&P 500® Index.**

#### Comparative Performance of the S&P 500® Futures Volatility Plus Daily Risk Control Index (SPXFVPRE) and the S&P 500® Futures Excess Return Index (SPXFP) and the S&P 500® Index (SPX)



#### Index Annualized Return Compared to the S&P 500® Futures Excess Return Index and its Parent Index

The following table provides a comparison of the annualized returns of the S&P 500® Futures Volatility Plus Daily Risk Control Index, the S&P 500® Futures Excess Return Index and the S&P 500® Index for the applicable period ended March 3, 2025 (using hypothetical performance data and historical closing levels, as described above). Annualized return represents the average rate of return per annum, calculated as the geometric average of the percentage change of the applicable index during the applicable time period. **You should not take the hypothetical or historical annualized returns of the indices as an indication of the future performance of any index, including the S&P 500® Futures Volatility Plus Daily Risk Control Index.**



March 2025 S&P 500® Futures Volatility Plus Daily Risk Control  
Index Supplement  
Dated March 21, 2025

**Comparison of Annualized Returns of the S&P 500® Futures Volatility Plus Daily Risk Control Index, the S&P 500® Futures Excess Return Index and the S&P 500® Index**

	1 Year	3 Years	5 Years	Since January 2, 2020
<b>S&amp;P 500® Index</b>	<b>13.87%</b>	<b>10.26%</b>	<b>14.26%</b>	<b>12.00%</b>
<b>S&amp;P 500® Futures Excess Return Index</b>	<b>8.71%</b>	<b>6.79%</b>	<b>12.60%</b>	<b>10.37%</b>
<b>S&amp;P 500® Futures Volatility Plus Daily Risk Control Index</b>	<b>11.60%</b>	<b>10.47%*</b>	<b>18.32%*</b>	<b>14.30%*</b>

\* Historical information begins April 25, 2022 (the index launch date). Hypothetical performance data, which was used for all data prior to April 25, 2022, was obtained from the index sponsor's website, without independent verification.

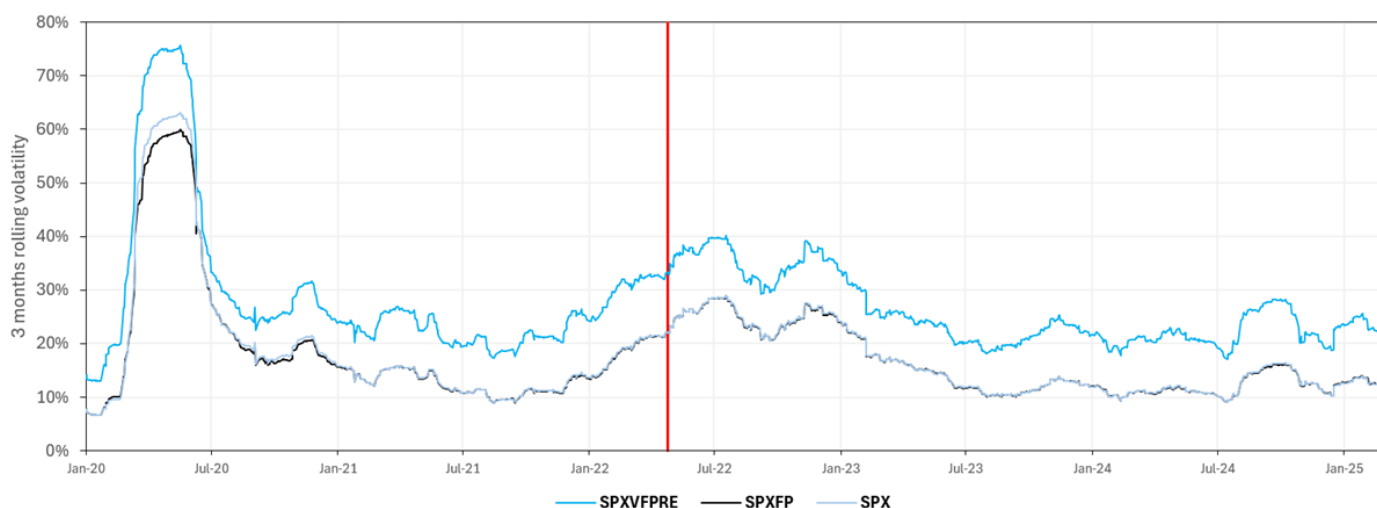


## March 2025 S&P 500® Futures Volatility Plus Daily Risk Control Index Supplement Dated March 21, 2025

### Index Annualized Volatility Compared to the S&P 500® Futures Excess Return Index and its Parent Index

The following graph provides a comparison of the annualized volatility of the S&P 500® Futures Volatility Plus Daily Risk Control Index, the S&P 500® Futures Excess Return Index and the S&P 500® Index from January 2, 2020 through March 3, 2025 (using hypothetical performance data and historical closing levels, as described above). In the graph, historical annualized volatility can be found to the right of the vertical solid line marker. For each day, annualized volatility is a measure of the historical variability of returns, and is calculated as the square root of 252 multiplied by the sample standard deviation of the daily logarithmic returns of the index during a 60 business day look-back period. **You should not take the hypothetical or historical annualized volatility of the indices as an indication of the future performance of any index, including the S&P 500® Futures Volatility Plus Daily Risk Control Index.**

**Comparison of Annualized Volatility of the S&P 500® Futures Volatility Plus Daily Risk Control Index (SPXVFPRE), the S&P 500® Futures Excess Return Index (SPXFP) and the S&P 500® Index (SPX)**





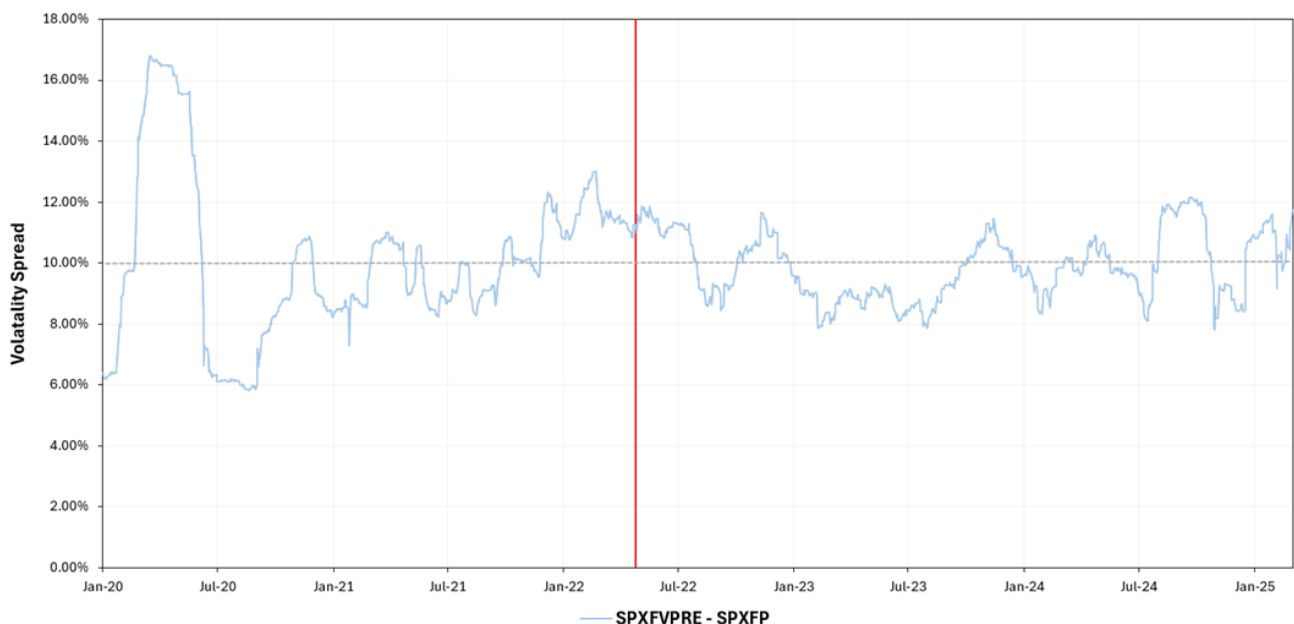
## March 2025 S&P 500® Futures Volatility Plus Daily Risk Control Index Supplement

Dated March 21, 2025

### Index Volatility Spread

The following graph shows the percentage difference in the annualized volatility of the index compared to the S&P 500® Futures Excess Return Index from January 2, 2020 through March 3, 2025 (using hypothetical performance data and historical closing levels, as described above). In the graph, historical annualized volatility can be found to the right of the vertical solid line marker. For each day, annualized volatility is a measure of the historical variability of returns, and is calculated as the square root of 252 multiplied by the sample standard deviation of the daily logarithmic returns of the index during a 60 business day look-back period. The index is intended to provide investors with leveraged exposure to the S&P 500® Futures Excess Return Index based on a dynamic volatility target. The dynamic volatility target is the applicable realized volatility of the S&P 500® Futures Excess Return Index plus 10%. However, because of how the leverage factor is calculated, there is a lag of two index calculation days between the measurement of realized volatility of the S&P 500® Futures Excess Return Index and the calculation of the leverage factor. Therefore, the index will not reflect the most current volatility of the S&P 500® Futures Excess Return Index and the realized volatility of the index will not always be exactly 10% higher than the realized volatility of the S&P 500® Futures Excess Return Index. **You should not take the hypothetical or historical annualized volatility of the indices as an indication of the future performance of any index, including the S&P 500® Futures Volatility Plus Daily Risk Control Index.**

### Percentage Difference Between the Annualized Volatility of the S&P 500® Futures Volatility Plus Daily Risk Control Index and the S&P 500® Futures Excess Return Index



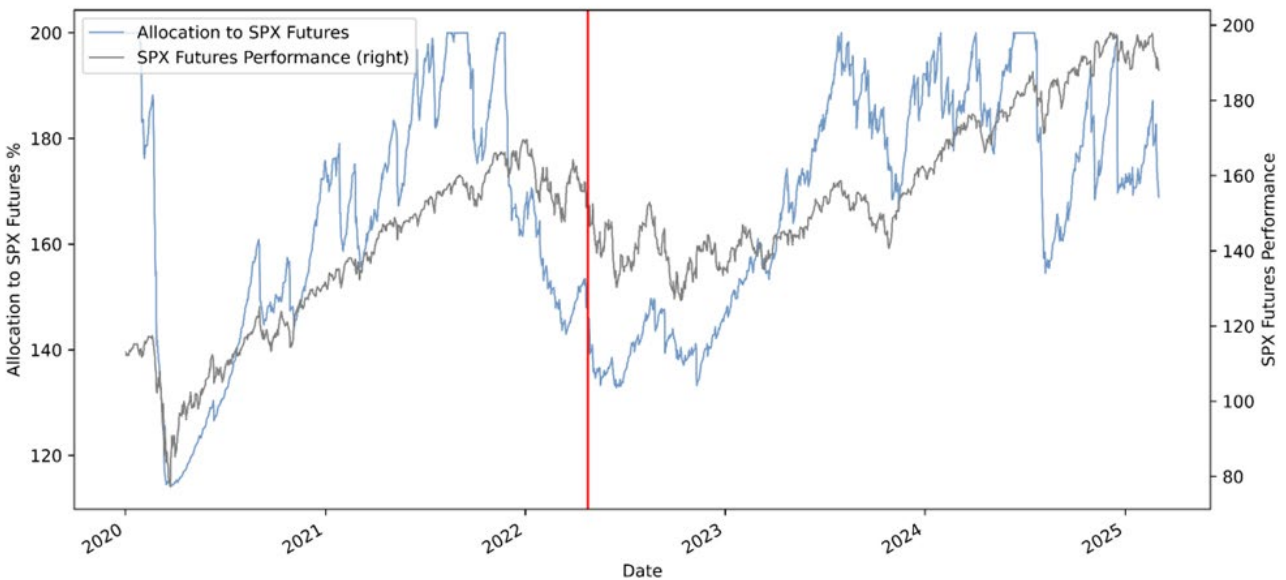


## March 2025 S&P 500® Futures Volatility Plus Daily Risk Control Index Supplement Dated March 21, 2025

### Index Exposure to the S&P 500® Futures Excess Return Index

The following graph displays the percentage of index exposure to the S&P 500® Futures Excess Return Index (in blue) and the performance the S&P 500® Futures Excess Return Index (in gray) during the period from January 2, 2020 through March 3, 2025 (using hypothetical performance data and historical closing levels, as described above). The S&P 500® Futures Excess Return Index has been adjusted to have a closing level of 100.00 on January 2, 2020 by dividing the applicable closing level on each day by such index's closing level on January 2, 2020 and multiplying the quotient by 100.00. In the graph, historical data can be found to the right of the vertical solid line marker. The percentage of index exposure to the S&P 500® Futures Excess Return Index on March 3, 2025 is 169%. **You should not take the hypothetical performance data or historical levels of the index as an indication of its future performance.**

### Percentage of Index Exposure to the S&P 500® Futures Excess Return Index





### ***Selected Risk Factors***

An investment in securities linked to the index is subject to the risks described below as well as the risks and considerations described in the accompanying underlier supplement no. 44, the applicable pricing supplement, the applicable product supplement, if any, the applicable general terms supplement, if any, the accompanying prospectus supplement and the accompanying prospectus. The following risk factors are discussed in greater detail in the accompanying underlier supplement no. 44. References below to “reference equity index” mean the “S&P 500® Index”.

- The Estimated Value of Your Securities At the Time the Terms of Your Securities 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 Securities
- Your Securities Are Subject to the Credit Risk of GS Finance Corp., as Issuer, and the Credit Risk of The Goldman Sachs Group, Inc., as Guarantor
- The Market Value of Your Securities May Be Influenced by Many Unpredictable Factors
- If the Value of an Underlier Changes, the Market Value of Your Securities May Not Change in the Same Manner
- The Return on Your Securities Will Not Reflect Any Dividends Paid on Any Underlier Stock
- You Have No Shareholder Rights or Rights to Receive Any Underlier Stock
- Past Performance is No Guide to Future Performance
- The Policies of the Underlier Sponsor and Changes That Affect the Equity Futures Index or the Securities Comprising the Reference Equity Index Could Affect the Payment Amount on Your Securities and Their Market Value
- Except to the Extent The Goldman Sachs Group, Inc. Is One of the Companies Whose Common Stock Comprises the Reference Equity Index, and Except to the Extent That We or Our Affiliates May Currently or in the Future Own Securities of, or Engage in Business With, the Issuers of Securities Comprising the Reference Equity Index or Own the Underlying Futures Contracts, There Is No Affiliation Between Us and the Issuers of Securities Comprising the Reference Equity Index
- Linking to an Equity Futures Contract Is Different From Linking to the Applicable Reference Equity Index
- Negative Roll Yields Will Adversely Affect the Level of the Equity Futures Index Over Time and Therefore the Amount Payable on the Securities
- Futures Contracts Are Not Assets with Intrinsic Value
- You Have No Rights in Any Futures Contract Tracked by the Dow Jones Industrial Average Futures Excess Return Index, the Nasdaq-100 Futures Excess Return™ Index, the Russell 2000® Futures Excess Return Index or the S&P 500® Futures Excess Return Index, As Applicable
- Owning the Securities Is Not the Same as Directly Owning the Securities or Futures Contract Directly or Indirectly Tracked by the Dow Jones Industrial Average Futures Excess Return Index, the Nasdaq-100 Futures Excess Return™ Index, the Russell 2000® Futures Excess Return Index or the S&P 500® Futures Excess Return Index
- Suspension or Disruptions of Market Trading in Stocks or Futures Contracts May Adversely Affect the Value of the Securities
- Notwithstanding That the Title of the Volatility Plus Index Includes the Phrase “Risk Control,” the Volatility Plus Index May Decrease Significantly More or Increase Significantly Less Than the Underlying Index
- There Is No Assurance that Calculating Realized Volatility as the Average of Short-Term Volatility and Long-Term Volatility Is the Best Way to Measure Realized Volatility
- The Volatility Plus Index Will Not Reflect the Most Current Volatility of the Underlying Index
- The Relative Performance of the Volatility Plus Index As Compared to the Underlying Index Cannot Be Predicted
- The Volatility Plus Index Is Subject to Risks Associated With Leveraged Exposure and There Is a Greater Risk You Will Not Receive a Coupon, If Applicable, and a Greater Risk You Will Receive Less than the Face Amount of Your Securities Relative to Securities Linked to the Underlying Index, Assuming All Other Terms Remain the Same
- There Is No Guarantee that the Volatility Plus Index Will Achieve the Volatility Target
- The Volatility Plus Index Will Have Leveraged Exposure to the Underlying Index in Falling Stock Markets
- The Volatility Plus Index Has a Limited Operating History
- If the Closing Level of the Volatility Plus Index Becomes Zero or Negative, the Closing Level of the Volatility Plus Index Will Remain Zero





March 2025 S&P 500® Futures Volatility Plus Daily Risk Control  
Index Supplement  
Dated March 21, 2025

***About This Index Supplement***

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

This index supplement constitutes a supplement to the documents listed below and therefore should be read in conjunction with such documents:

- [Underlier supplement no. 44 dated March 20, 2025](#)
- Prospectus supplement dated February 14, 2025
- Prospectus dated February 14, 2025



We have not authorized anyone to provide any information or to make any representations other than those contained in or incorporated by reference in this index supplement, the accompanying underlier supplement no. 44, the accompanying prospectus supplement or the accompanying prospectus. We take no responsibility for, and can provide no assurance as to the reliability of, any other information that others may provide. This index supplement addendum is an offer to sell only the securities offered hereby, but only under circumstances and in jurisdictions where it is lawful to do so. The information contained in this index supplement addendum, the accompanying index supplement no. 44, the accompanying prospectus supplement and the accompanying prospectus is current only as of the respective dates of such documents.

## TABLE OF CONTENTS

March 2025 S&P 500® Futures Volatility Plus Daily Risk Control Index Supplement dated March 21, 2025

<a href="#">S&amp;P 500® Futures Volatility Plus Daily Risk Control Index</a>	S-1
<a href="#">Comparative Performance Data</a>	S-2
<a href="#">Selected Risk Factors</a>	S-7
<a href="#">About This Index Supplement</a>	S-8