



**GS Finance Corp.**  
Medium-Term Notes, Series F  
guaranteed by  
**The Goldman Sachs Group, Inc.**

**BlackRock® Dynamic Factor Index**

The BlackRock® Dynamic Factor Index (the index) measures the extent to which the performance of the combination of an equity ETF basket composed of up to five equity ETFs, a fixed income ETF basket composed of up to three fixed income ETFs and a cash constituent (together with the ETFs, the underlying assets) outperforms the sum of the return on (i) the Secured Overnight Financing Rate (SOFR) plus 0.26161% plus (ii) an additional 0.65% per annum fee (accruing daily). The weights of the ETFs within the equity ETF basket are determined based on three common economic measures (factors) – “economic regime”, “value” and “momentum”, while the weights of the ETFs within the fixed income ETF basket are determined based on how medium-term interest rates are trending. The relative weights of the equity ETF basket, the fixed income ETF basket and the cash constituent that compose the index are determined based on measures of volatility using the past returns of the ETFs (i.e., the degree of variation in past returns given the various weightings of these components). The equity ETF basket rebalances monthly and the fixed income ETF basket rebalances on each index business day. Allocations of the index among the equity ETF basket, the fixed income ETF basket and the cash constituent are determined on each index business day with a goal of limiting volatility (i.e., the degree of variation in the past returns) to no more than 5%.

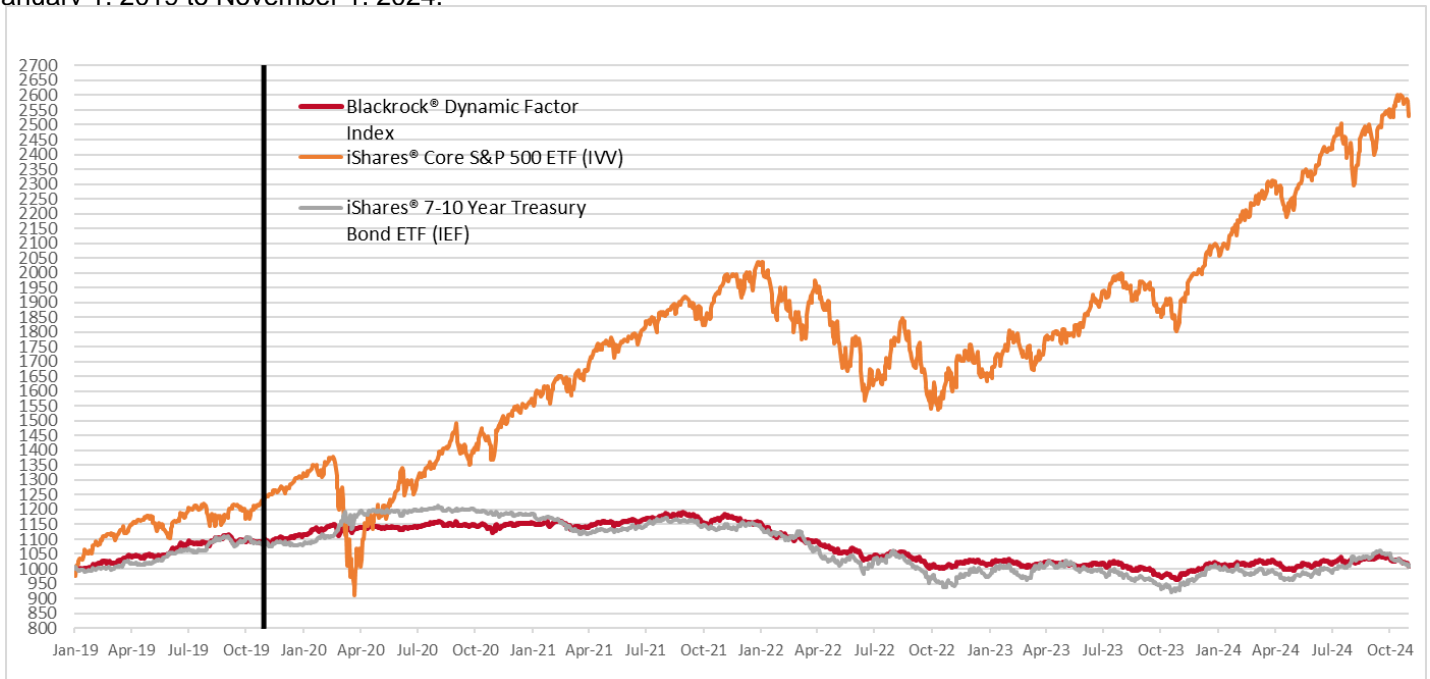
As a result of such allocations, the index may include limited exposure to the ETFs and may allocate a significant portion of its exposure to the cash constituent, the return on which will be less than the sum of the return on (i) SOFR plus 0.26161% plus (ii) 0.65% per annum. In the recent past, a very significant portion (up to 85.5%) of the index has been allocated to the cash constituent. The greater the percentage of the index allocated to the cash constituent, the higher the return that will be required on the ETFs in order to have a return on your investment.

Because the index measures the performance of the selected underlying assets less the sum of the return on (i) SOFR plus 0.26161% plus (ii) 0.65% per annum (accruing daily), on any day such underlying assets must outperform the return on (i) SOFR plus 0.26161% plus (ii) 0.65% per annum for the index level to increase.

Prior to December 28, 2021, the index measured the extent to which the performance of the combination of the underlying assets outperformed the sum of the return on 3-month USD LIBOR plus an additional 0.65% per annum fee (accruing daily). Further, prior to such date, the cash constituent reflected notional returns accruing to a hypothetical investor from an investment in a notional money market account that accrued interest at 3-month USD LIBOR, which return was less than the return on the sum of 3-month USD LIBOR plus 0.65% per annum. As a result, extremely limited historical information regarding the performance of the index subsequent to its discontinued use of 3-month USD LIBOR is available, which may make it difficult for you to make an informed decision with respect to an investment in the notes.

**Index Performance versus Selected Benchmarks\***

The following chart and table provide a comparison between the index (using historical information and hypothetical data, as explained below) and certain classes of assets (in each case, represented by a benchmark equity ETF (the iShares® Core S&P 500 ETF (IVV)) and a benchmark fixed income ETF (the iShares® 7-10 Year Treasury Bond ETF (IEF)) from January 1, 2019 to November 1, 2024.



\* Index data reflects the index’s use of 3-month USD LIBOR prior to December 28, 2021. The index discontinued use of 3-month USD LIBOR for all purposes on December 28, 2021 and replaced such rate with SOFR plus 0.26161%. Therefore, extremely limited information regarding the performance of the index subsequent to its discontinued use of 3-month USD LIBOR is available, which may make it difficult for you to make an informed decision with respect to an investment in the notes.

Your investment in securities linked to the index involves certain risks. See “Selected Risk Factors” on page S-4 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 addendum, the applicable pricing supplement, the applicable product supplement, if any, the accompanying index 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.

**Goldman Sachs & Co. LLC**

November 2024 BlackRock® Dynamic Factor Index Supplement Addendum dated November 21, 2024.

# November 2024 BlackRock® Dynamic Factor Index Supplement Addendum

Dated November 21, 2024

As of November 1, 2024	BlackRock® Dynamic Factor Index****	iShares® Core S&P 500 ETF (IVV)	iShares® 7-10 Year Treasury Bond ETF (IEF)
Effective Performance (1 Month)	-2.91%	0.41%	-4.31%
Effective Performance (6 Month)	1.50%	14.88%	4.21%
Annualized* Performance (since January 1, 2019)	0.16%	17.33%	0.13%
Annualized* Realized Volatility (since January 1, 2019)	4.93%	20.37%	7.61%
Return over Risk (since January 1, 2019)**	0.03	0.85	0.02
Maximum Peak-to-Trough Drawdown***	-19.10%	-33.90%	-23.93%

\* Calculated on a per annum percentage basis.

\*\* Calculated by dividing the annualized performance by the annualized realized volatility since January 1, 2019.

\*\*\* The largest percentage decline experienced in the relevant measure from a previously occurring maximum level.

\*\*\*\* Index data reflects the index's use of 3-month USD LIBOR prior to December 28, 2021. The index discontinued use of 3-month USD LIBOR for all purposes on December 28, 2021 and replaced such rate with SOFR plus 0.26161%. Therefore, extremely limited information regarding the performance of the index subsequent to its discontinued use of 3-month USD LIBOR is available, which may make it difficult for you to make an informed decision with respect to an investment in the notes.

Benchmark ETF data is based on the historical levels of the benchmark ETFs. The historical index information from October 31, 2019 (the index launch date) to November 1, 2024 reflects the actual performance of the index. (In the chart, this historical index information can be found to the right of the vertical solid line marker.) The hypothetical index data from January 1, 2019 to October 30, 2019 is based on the historical levels of the underlying assets, using the same methodology that is used to calculate the index. Please also note that the benchmark ETFs that are used to represent asset classes for purposes of the above table and chart may not be underlying assets for purposes of the index at any particular time (or at all) and in some cases differ from the underlying assets that are used to represent classes of assets with the same or similar titles for purposes of the index. **You should not take the historical index information, hypothetical index data or historical benchmark ETF data as an indication of the future performance of the index.**

## Underlying Asset Weightings

As of November 1, 2024, the following chart sets forth the weighting of each underlying asset and the hypothetical and historical average percentage weightings of the underlying assets, the highest percentage weightings of the underlying assets and the percentage of index business days with positive weightings for the underlying assets from January 1, 2019 to November 1, 2024. This data reflects the same historical information and hypothetical data as in the previous tables. **You should not take the historical information or hypothetical data as an indication of the future performance of the index.**

Underlying Asset	Weighting (as of November 1, 2024)*	Average Weighting (as of November 1, 2024)*	Highest Weighting (as of November 1, 2024)*	Percentage of Index Business Days When Underlying Asset is Included in the Index (as of November 1, 2024)*
iShares® MSCI USA Momentum Factor ETF	9.70%	11.1%	41.1%	96.9%
iShares® MSCI USA Quality Factor ETF	6.05%	16.9%	33.1%	80.1%
iShares® MSCI USA Size Factor ETF	8.88%	6.4%	46.4%	84.6%
iShares® MSCI USA Min Vol Factor ETF	2.52%	4.5%	24.7%	89.8%
iShares® MSCI USA Value Factor ETF	3.74%	4.7%	26.3%	77.2%
iShares® 1-3 Year Treasury Bond ETF	0.00%	8.8%	38.7%	36.9%
iShares® 7-10 Year Treasury Bond ETF	19.19%	22.7%	40.0%	100.0%
iShares® 20+ Year Treasury Bond ETF	19.19%	13.9%	40.0%	66.2%
Cash Constituent**	30.73%	22.3%	85.5%	87.8%

\* Current weighting information is updated from time to time by the index administrator at [blackrock.com/us/individual/products/309029/blackrock-dynamic-factor-index](https://blackrock.com/us/individual/products/309029/blackrock-dynamic-factor-index). We are not incorporating by reference the website or any material it includes in this disclosure statement supplement.

\*\* Prior to December 28, 2021, the cash constituent reflected notional returns accruing to a hypothetical investor from an investment in a notional money market account that accrued interest at 3-month USD LIBOR.

## Underlying Assets

The following is a list of the underlying assets for the index, including the related asset classes, asset class minimum and maximum weights and underlying asset minimum and maximum weights.

Asset Class	Asset Class		Underlying Asset*	Ticker	Underlying Asset	
	Minimum Weight	Maximum Weight			Minimum Weight	Maximum Weight
Equities	0%	100%	iShares® MSCI USA Momentum Factor ETF	MTUM	0%	60%
			iShares® MSCI USA Size Factor ETF	SIZE	0%	60%
			iShares® MSCI USA Quality Factor ETF	QUAL	0%	60%
			iShares® MSCI USA Value Factor ETF	VLUE	0%	60%
			iShares® MSCI USA Min Vol Factor ETF	USMV	0%	60%
Fixed Income	0%	100%	iShares® 1-3 Year Treasury Bond ETF	SHY	0%	50%
			iShares® 7-10 Year Treasury Bond ETF	IEF	50%	50%
			iShares® 20+ Year Treasury Bond ETF	TLT	0%	50%
Cash Equivalent	0%	100%**	Cash Constituent	N/A	0%	100%**

\* The value of a share of an ETF may reflect transaction costs and fees incurred or imposed by the investment advisor of the ETF as well as the costs to the ETF to buy and sell its assets. These costs and fees are not included in the calculation of the index underlying the ETF.

\*\* The index may allocate a significant portion of its exposure to the cash constituent. In the recent past, a very significant portion (up to 85.5%) of the index has been allocated to the cash constituent.

## 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 BlackRock® Dynamic Factor index supplement no. 59, the applicable pricing supplement, the applicable product supplement, if any, the accompanying prospectus supplement and the accompanying prospectus. The following risk factors are discussed in greater detail in the applicable pricing supplement and the accompanying BlackRock® Dynamic Factor index supplement no. 59.

### Risks Related to the Index

- The Index Measures the Performance of the Underlying Assets Less the Sum of the Return on the Notional Interest Rate Plus 0.65% Per Annum (Accruing Daily)
- The Index May Be Significantly Uninvested in Underlying Assets That May Have Higher Returns
- The Index May Not Achieve its Volatility Target
- The Factor-Based Investment Methodology Used by the Index May Not Be Successful
- Your Investment in the Securities May Be Subject to Concentration Risks. Both the index and the equity ETFs attempt to follow factor-based investment strategies that may, in practice, favor a particular market sector or industry under certain conditions
- You May Not Have Exposure to One or More of the Underlying Assets During the Term of the Securities
- Maximum Weights, Volatility Constraints and Other Index Features May Affect the Index's Exposure to Underlying Assets
- The Index Weightings May Be Ratably Rebalanced into the Cash Constituent on Any or All Days During the Term of the Securities
- The Index and Some of the ETFs Have Limited Performance Histories and May Perform in Unexpected Ways
- The Index Has a Limited Operating History
- The Index Administrator Relies on Data Provided By Third Parties Without Independent Verification
- The Algorithm Used By the Index Administrator May Not Identify Globally Optimum Solutions
- Certain Values Used to Calculate Factor "Alphas" Should Not Be Interpreted as a Measure of the Absolute or Relative Ability of the Factors to Explain or Predict Equity ETF Returns of Any Type
- The Economic Regime Factor Signal May Not Be Successful and May Not Outperform any Alternative Strategies That Might Be Employed in Respect of the CFNAI
- The Index Uses CFNAI Data "As Released", and Does Not Take Subsequent Revisions of the CFNAI Data Into Account
- The Index Does Not Use CFNAI Data in the Same Manner as Contemplated by the Staff of the Federal Reserve Bank of Chicago
- If the Level of the Index Changes, the Market Value of Your Securities May Not Change in the Same Manner
- Past Index Performance is No Guide to Future Performance
- The Lower Performance of One Underlying Asset May Offset an Increase in the Other Underlying Assets
- Correlation of Performances Among the Underlying Assets May Reduce the Performance of the Index
- The Policies of the Index Administrator and the Blackrock Index Services Governance Committee, and Changes That Affect the Index or the Underlying Assets, Could Affect the Amount Payable on Your Securities and Their Market Value
- On December 28, 2021, the Index Discontinued Use of 3-Month USD LIBOR For All Purposes and Replaced Such Rate
- Certain Risks Related to SOFR
- The Historical Levels of the Notional Interest Rate Are Not an Indication of the Future Levels of the Notional Interest Rate

### Risks Related to the ETFs

#### *Risks Related to All of the ETFs*

- The ETFs Are Passively Managed to Track an Index and May Not Perform as Well as an Actively Managed Fund or Another Investment

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- There is No Affiliation Between Us and Any Issuer of Assets Held by Any ETF or Any Sponsor of Any ETF
- The Policies of the ETF Sponsors and/or Investment Advisor, and the Policies of Any Sponsor of an Underlying Index Tracked by an ETF, Could Affect the Level of the Index
- There is No Assurance That an Active Trading Market Will Continue for the ETFs or That There Will Be Liquidity in Any Such Trading Market; Further, Each ETF is Subject to Management Risks, Securities Lending Risks and Custody Risks
- The ETFs May Be Subject to Pricing Dislocations and Other Market Forces, Which May Adversely Affect the Level of the Index
- The Values of the ETFs May Not Completely Track the Level of the Indices Underlying Such ETFs
- The ETFs May Be Subject to Global or Regional Financial Risks, Which May Adversely Affect the Level of the Index

## *Risks Related to Eligible ETFs concentrated in the Information Technology sector*

- Certain ETFs Are Concentrated in the Information Technology Sector and Do Not Provide Diversified Exposure

## *Risks Related to the iShares® MSCI USA Momentum Factor ETF*

- Momentum Securities Risk
- In November 2020, the iShares® MSCI USA Momentum Factor ETF Changed the Index it Tracks
- The Index Which the iShares® MSCI USA Momentum Factor ETF Tracks Is a New Index With a Limited Historical Track Record

## *Risks Related to the iShares® MSCI USA Quality Factor ETF*

- Quality Stocks Risk

## *Risks Related to the iShares® MSCI USA Size Factor ETF*

- Low Size Risk

## *Risks Related to the iShares® MSCI USA Min Vol Factor ETF*

- Volatility Risk

## *Risks Related to the iShares® MSCI USA Value Factor ETF*

- Value Risk

## *Risks Related to ETFs Holding U.S. Government Debt Securities*

- Your Investment is Subject to Concentration Risks. Certain of the ETFs invest in U.S. Treasury bonds that are all obligations of the United States and in securities with a similar remaining time to maturity. As a result, these ETFs are concentrated in the performance of bonds issued by a single issuer and having the same general tenor and terms
- ETFs Holding U.S. Government Bonds May Change in Unexpected Ways

## *Risks Related to ETFs Holding Debt Securities*

- Your Investment is Subject to Income Risk and Interest Rate Risk

## About This Index Supplement Addendum

GS Finance Corp. may use this index supplement addendum 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 addendum 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 addendum is being used in a market-making transaction.**

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

- [BlackRock® Dynamic Factor index supplement no. 59 dated November 21, 2024](#)
- [Prospectus supplement dated February 13, 2023](#)
- [Prospectus dated February 13, 2023](#)

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 addendum, the accompanying index supplement no. 59, 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 notes 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. 59, the accompanying prospectus supplement and the accompanying prospectus is current only as of the respective dates of such documents.

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