Goldman Sachs Grand Prix Index

Global Markets Division – US

Key Facts

Goldman Sachs Grand Prix Index

Bloomberg Ticker	GSGRNDPX
Index Launch Date	October 28, 2022
Index Sponsor	Goldman Sachs International
Index Calculator	Goldman Sachs International
Currency	USD
Max Underliers	2
Volatility Target	4.50%
Return Type	Excess Return
Index Deduction Rate[2]	0.50% per annum
Rebal/Servicing Cost[1,2]	Backtested high of 0.62%p.a., backtested average of 0.44%

[1] Source: Goldman Sachs Global Markets Division, As of October 31, 2022. Backtested data from March 1, 2002 to October 28, 2022 and live data thereafter. Backtesting analysis/simulated results are for illustrative purposes only. GS provides no assurance or guarantee that the Index will operate or would have operated in the past in a manner consistent with the above backtesting analysis. Performance figures are net of 0.50% per annum deduction rate and applicable servicing and rebalancing costs. Backtested performance is simulated performance data created by retroactively applying the Goldman Sachs Grand Prix Index's calculation methodology and strategy to historical prices of the assets underlying the Index. You should not take historical index performance data or hypothetical index performance data as an indication of the future performance of the Index.

[2] The Goldman Sachs Grand Prix Index is calculated on an excess return basis, and is subject to servicing costs (accruing daily) and rebalancing costs (applied to the volume of daily turnover) that are applied at rates that vary according to the index component. Further, a deduction rate of 0.50% per annum (accruing daily) is applied to the Index. For more information about the costs and deductions, see goldmansachsindices.com/products/ GSGRNDPX

Goldman Sachs Grand Prix Index

Introduction

The Goldman Sachs Grand Prix Index (the "Index"):

- aims to provide an **equity and bond portfolio** and seeks to capitalize on **calendar based signals and price patterns**.
- Seeks to dynamically allocate between an index of **US technology equity futures** for equity exposure and an index of **10-year T-Note futures** for bond exposure while **targeting 4.5% volatility**.
- Utilizes Salt Financial's **truVol® Risk Control Engine**, which aims to increase accuracy and responsiveness by utilizing intraday data and a proprietary mechanism.[1]

The Index at a Glance

Objective	The Index is designed to provide exposure to a long only portfolio consisting of an underlying equity component and an underlying bond component
Approach	The Index adjusts its exposure between an equity asset and a bond asset based on a risk parity allocation and certain market signals, including calendar based signals and price patterns, as well as a daily risk control feature
Holdings	An index of U.S. technology equity futures (equity asset) and an index of U.S. Treasury futures (bond asset)

Please see "Selected Risk Factors" in the disclosures for a summary of certain risks associated with the Goldman Sachs Grand Prix Index.

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[1] The weights of the index components are based in part upon the truVol Risk Control Engine "truVol®", which is determined and designed by Salt Financial Indices LLC (Salt Financial) (or any applicable successor thereto, which may include Goldman Sachs International or its affiliates), a third party vendor, who licenses truVol to Goldman Sachs for use in calculating the Goldman Sachs Grand Prix Index. Although Goldman Sachs International administers the Goldman Sachs Grand Prix Index on a day-to-day basis based on the Index Methodology, and calculates and publishes index levels in its role as calculation agent, neither Goldman Sachs International nor any of its affiliates was in any way involved in the design or determination of truVol nor offers any express or implicit guarantee, assurance or endorsement with regard to the quality or performance of such truVol tools in connection with the Index.

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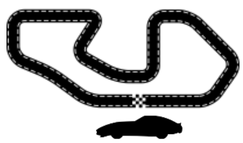
Index Overview

Goldman Sachs Grand Prix Index

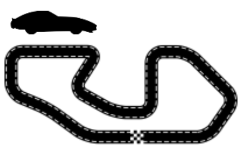
1



Calendar Based Signals & Price Patterns

The Index uses calendar based signals and price patterns to allocate the equity asset **(U.S. technology equity futures)** and the bond asset **(10-year T-Note futures).**

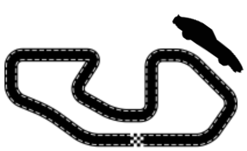
2



Risk parity weighting mechanism between the equity and bond asset

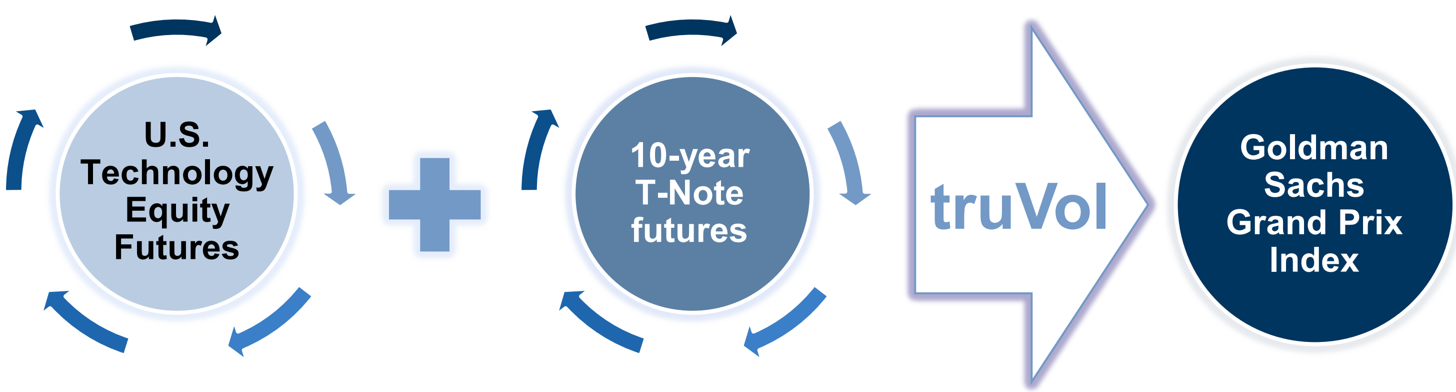
The Index attempts to allocate equal amounts of volatility between the equity and bond assets resulting from step 1 on a daily basis.

3



A daily risk control mechanism

On a daily basis, the Index applies a volatility control utilizing **Salt Financial's truVol** technology[1] by adjusting weights to **target a realized volatility of 4.5%.**



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Calendar Based Signals & Price Patterns

Goldman Sachs Grand Prix Index

Turn of Month Signals: due to monthly rebalancings and allocations from different market participants, the equity markets may mean revert towards the end of the month and outperform during the first few days of the following calendar month. A "mean reversion signal" and "long" signal are each calculated for the equity asset to account for this turn of month period.

FOMC Signal: On average, the Fed has historically not disappointed the markets, so the Index will increase the weight of the equity asset on the day prior to, and the day of, the scheduled release of a statement by the FOMC to announce monetary policies.

Equity Option Expiry Signal: due to option market-making flows during the last week of trading for monthly equity options, equity markets may trend during such weeks, and the Index will increase the weight of the equity asset on relevant days accordingly.

Short-Term Mean Reversion Signal: investors may overreact to new information, and taking a short-term contrarian view in equity markets has historically provided strong performance. Based on this assumption, if the short-term returns of the equity asset are positive, the weight of the equity asset is decreased, and if the short-term returns are negative, the weight of the equity asset is increased, subject to specified caps and floors.

Long-Term Trend Signal: equity markets may trend over longer periods of time (several months to several years). Based on this assumption, if the long-term returns of the equity asset are positive, the weight of the equity asset is increased, and if the long-term returns are negative, its weight is decreased, subject to specified caps and floors.

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Calendar Based Signals & Price Patterns

Constructing 5-Factor Equity Portfolio

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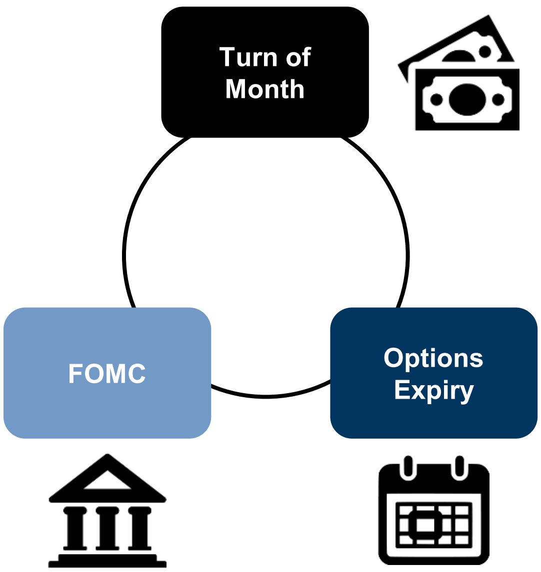
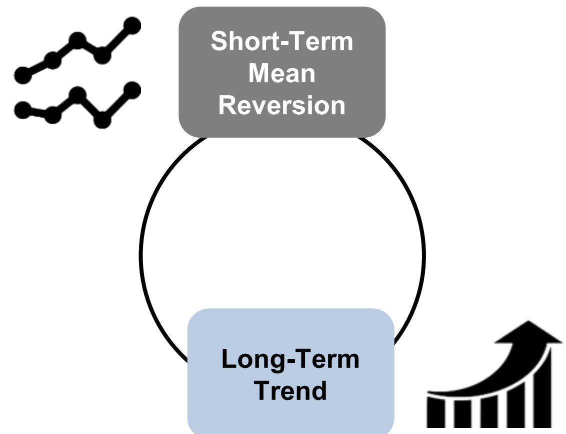
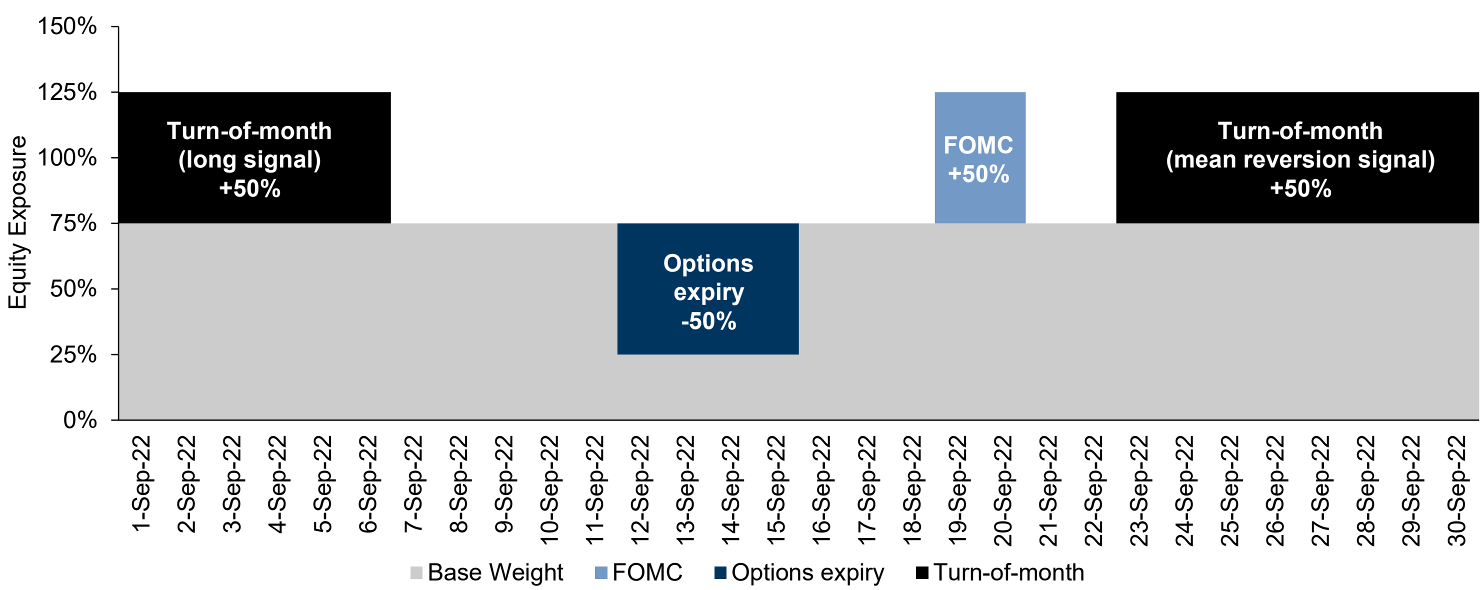
Calendar Based Signals



Price Patterns



Calendar Based Signals in Action



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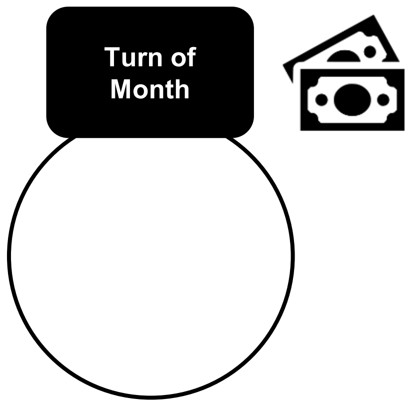
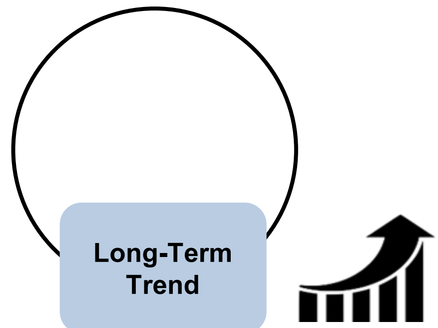
Calendar Based Signals & Price Patterns

Constructing 2-Factor Bond Portfolio

Calendar Based Signals



Price Patterns



Turn-of-Month Signal

- The Index will increase the weight of the bond asset for the last 3 days of the month (+100% exposure)

Long-Term Trend Signal

- If the long-term returns of the bond asset are positive, the Index will increase the weight of the bond asset and if the long-term returns are negative, the Index will decrease the weight of the bond asset (daily exposure to bonds is equal to the exponentially-weighted moving average performance, up to +/- 100%)

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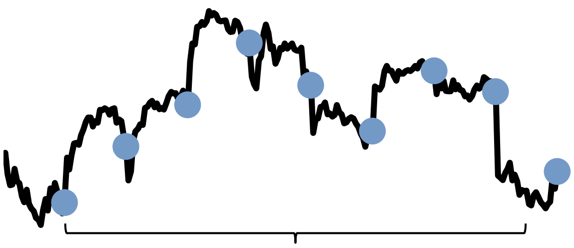
Risk Control Mechanism

truVol Risk Control Engine (RCE)

- The Index utilizes truVol Risk Control Engine (RCE), a patent-pending technology adapted from prior academic research and determined and designed by Salt Financial Indices LLC.[1]
- Powered by higher frequency returns (i.e., intraday data) to aim for increased accuracy and responsiveness as compared to traditional risk control mechanisms that use only daily prices.

Intraday Data

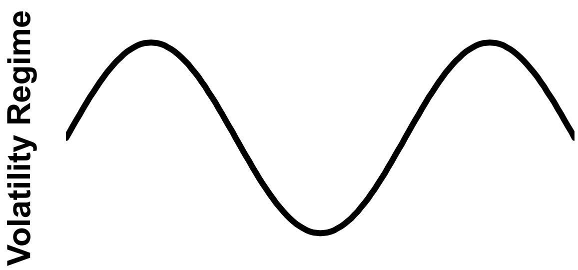


Intraday Returns Over Multiple Days

Leverages a **realized volatility** model (high frequency returns) for more responsive forecasting.

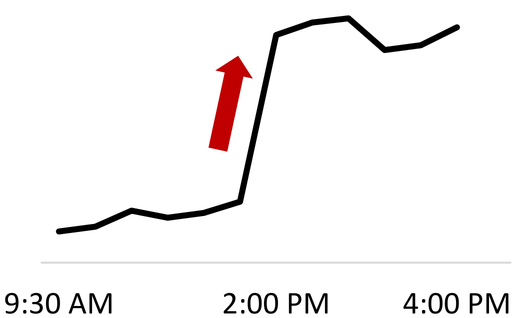
Objective: Respond faster to market events, aiming for lower and more stable index volatility.

Dynamic Risk Scalars



Uses a **short-term volatility trend indicator** to adjust equity exposure up or down by 20%.

Objective: Use the reduction in volatility from intraday data to seek higher returns.



Reacts to spikes in intraday volatility by **adjusting its exposure that same day**.

Objective: React to sharp increases in market volatility faster while still rebalancing daily at the close of trading

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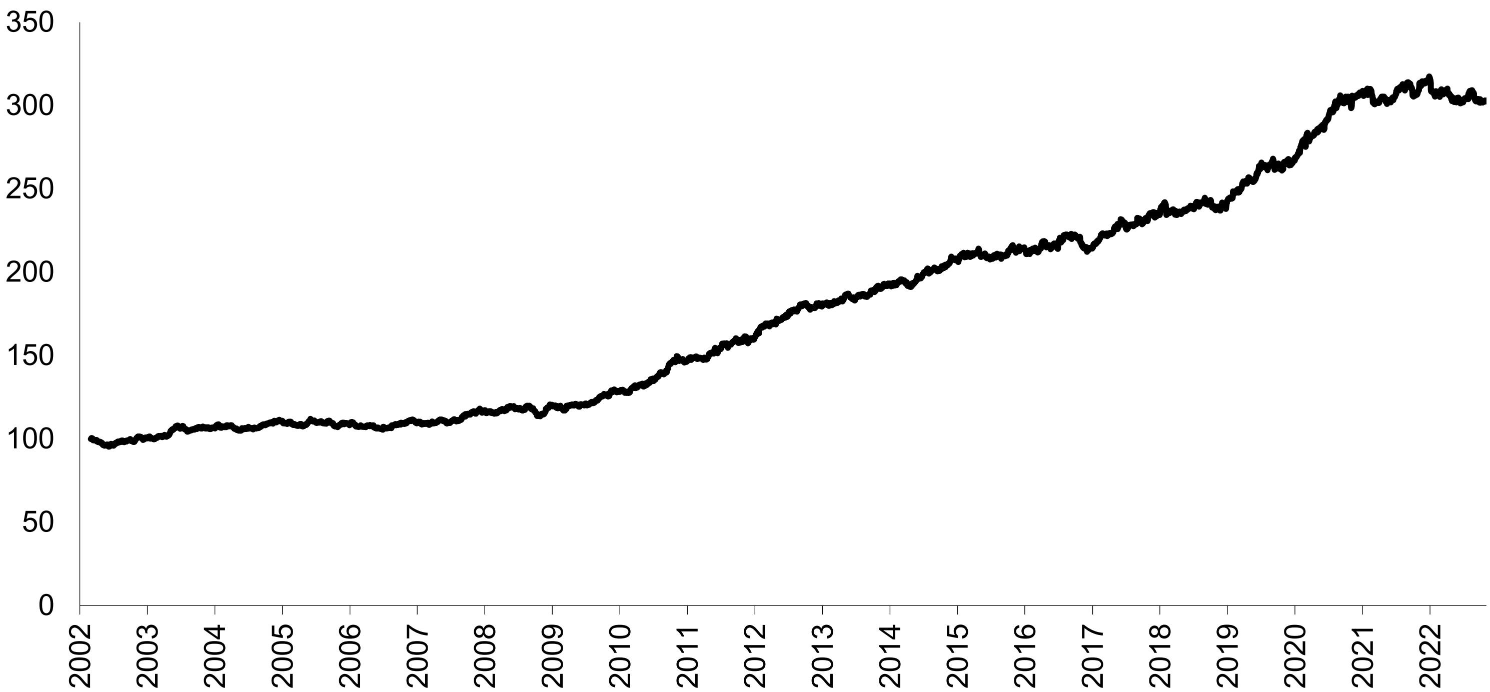
Backtested and Historical Index Performance

Goldman Sachs Grand Prix Index

The below graph and table show backtested data from March 1, 2002 to October 28, 2022, and live data thereafter. The backtesting analysis/simulated results are for illustrative purposes only. GS provides no assurance or guarantee that the Index will operate or would have operated in the past in a manner consistent with the below backtesting analysis. Performance figures are net of the 0.50% per annum deduction rate and applicable servicing and rebalancing costs in the Index. Backtested performance is simulated performance data created by retroactively applying the Goldman Sachs Grand Prix Index's calculation methodology and strategy to historical prices of the assets underlying the Index. You should not take historical index performance data or hypothetical index performance data as an indication of the future performance of the Index.

Strategy Backtested and Historical Performance (March 1, 2002 – October 31, 2022)[1,2]



Annualized Return Since Inception (3/1/2002)[1,2]	**5.50%**
1 Year Return[1,2]	**-2.05%**
3 Year Annualized Return[1,2]	**4.44%**
5 Year Annualized Return[1,2]	**5.26%**

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Selected Risk Factors

Goldman Sachs Grand Prix Index

These "Selected Risk Factors" are intended to summarize certain risks associated with the Goldman Sachs Grand Prix Index, but are not exhaustive, and should be read in conjunction with the "Certain Risk Factors and Additional Information about the Index" section at the end of the Goldman Sachs Grand Prix Index Methodology. The "Selected Risk Factors" should not be regarded as offering advice on the advisability of investing in products that may be linked to the Index or the investment strategy underlying the Index. You should also read any relevant documentation which may highlight further risks particular to any product linked to the Index, or arising from the relationship between the terms of such product and the features of the Index.

The value of the Index depends on the values of the Index Components, each of which may increase or decrease in value over time. Neither the Index nor any of the Index Components includes any element of downside protection or guaranteed return. The value of an Index Component, or the Index itself, may fall substantially below its value at the Live Date or on any particular day and may fall to or below zero.

The Index has a very limited performance history. The Index will only be calculated live from the Live Date and as such, there will be no historical live performance data available in respect of it prior to that time.

Past performance or hypothetical past performance of the Index is no guide to future performance. The actual performance of the Index in the future may bear little relation to the historical performance or hypothetical historical past performance of the Index.

The Index deductions, including the Component Servicing Cost Rate and Component Rebalancing Cost Rate applicable to each Index Component, as well as the Index deduction rate, will have a negative impact on the Index performance. Such deductions may offset, in whole or in part, any increases in the return of the Index Components.

The Index employs truVol created by Salt Financial, a third party vendor. Goldman Sachs does not calculate the risk scalars, nor does Goldman Sachs guarantee the quality or accuracy of truVol or its output or its effectiveness in measuring volatility for the purpose of the weighting of the Index. If truVol fails to perform as expected, the Equity Asset may be over-weighted during a period when equity markets are underperforming or under-weighted during a period when equity markets are overperforming and the performance of the Index may suffer.

Depending on the application of the factors that impact the weights of the Index Components, the Index may have a leverage as high as 200%. Leverage means that the Index will have increased exposure to changes, which may be positive or negative, in the levels of the Index Components, magnifying the volatility and risk that the performance of the Index will be adversely affected should the value of the Index Components decrease. In other conditions the Index may have no exposure to either of the Index Components, or all of its exposure to only one Index Component.

No assurance can be given that the Index will achieve its volatility target of 4.5%, as the Index's volatility control mechanisms either rely on backward-looking historical volatility (which may not be replicated) or estimations of future volatility (which may not reflect actual future volatility). In addition, the Index may be slow to rebalance allocations or reduce exposure to Index Components following a sudden increase in volatility. All of these factors may cause the performance of the Index to be adversely and disproportionately affected by the poor performance of one or more Index Components.

The Market Signals, volatility control mechanisms, and risk parity allocation mechanism may each generate significant turnover within the Index which will impact performance due to the resulting embedded rebalancing costs and therefore negatively impact Index performance.

The Index's Market Signals may not perform as expected should market environments change, and such signals' effectiveness may wane or disappear over time. If the effectiveness of the Market Signals wanes or disappears, the changes to the Index Component weights will no longer reflect the underlying assumptions of such signals and the performance of the Index may suffer.

The performance of futures contracts may not correspond to the performance of their related Index Components, and are subject to certain risks that are not associated with their underlying assets. It is possible for the value of an Index Component composed of futures contracts to decrease significantly over time even when the relevant securities indices or near-term or spot prices of underlying commodities are stable or increasing. It is also possible, when the relevant securities indices or the near-term or spot prices of the underlying assets are decreasing, for the value of such Index Component to decrease significantly over time.

In the event that a Market Disruption Event occurs with respect to the Equity Proxy Asset, the whole Index will be disrupted, even if a Market Disruption Event has not occurred with respect to either Index Component. The value of the Index will not be published on any day on which a Market Disruption Event occurs.

If the Calculation Agent does not receive certain information from Salt Financial in a timely manner, or the information materially differs from the Calculation Agent's own determination, in its commercially reasonable discretion, then the Calculation Agent shall use information from the immediately preceding Equity Proxy Asset Business Day on which a Market Disruption Event did not occur. That information may not reflect current market conditions, and the performance of the Index may suffer as a result.

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