

**S&P Dow Jones
Indices**

A Division of **S&P Global**

S&P Futures Indices *Methodology*

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Introduction

Index Objective and Highlights

The S&P Futures Indices measure the performance of the nearest maturing equity, currency, and cryptocurrency futures contract. The indices roll at various frequencies, as defined in *Index Construction*. Each index calculates real-time, with excess return (ER) and total return (TR) versions available.¹

Index Family

Equity Futures Indices

- **S&P 500 Futures Index.** The index measures the performance of the nearest maturing quarterly E-mini S&P 500 futures contract (Symbol: ES) trading on CME.
- **S&P 500 Futures (3 Day Roll) Index.** The index measures the performance of the nearest maturing quarterly E-mini S&P 500 futures contract (Symbol: ES) trading on CME with a three-day roll period.
- **S&P 500 Futures (3 Day Roll) TWAP (3:20-3:30 PM) Index.** The index measures the performance of the S&P 500 Futures (3 Day Roll) Index, using Time-Weighted Average Prices (TWAP) snapped during a window of 3:20-3:30PM.
- **Dow Jones Industrial Average Futures Index.** The index measures the performance of the nearest maturing quarterly E-mini Dow (\$5) futures contract (Symbol: YM) trading on CME.

Currency Futures Indices

- **S&P U.S. Dollar Futures Index.** The index measures the performance of the nearest maturing quarterly U.S. Dollar futures contract (Symbol: DX) trading on ICE.
- **S&P Japanese Yen Futures Index.** The index measures the performance of the nearest maturing quarterly Japanese Yen futures contract (Symbol: JY) trading on CME.
- **S&P Australian Dollar Futures Index.** The index measures the performance of the nearest maturing quarterly Australian Dollar futures contract (Symbol: AD) trading on CME.
- **S&P Euro Futures Index.** The index measures the performance of the nearest maturing quarterly Euro futures contract (Symbol: EC) trading on CME.

Cryptocurrency Futures Indices

- **S&P CME Bitcoin Futures Daily Roll Index.** The index measures the return from a rolling long position in the two nearest maturing Bitcoin futures contracts (Symbol: BTC) trading on CME.
- **S&P CME Bitcoin Futures Index.** The index measures the performance of the nearest maturing monthly Bitcoin futures contract (Symbol: BTC) trading on CME.
- **S&P CME Ether Futures Index.** The index measures the performance of the nearest maturing monthly Ether futures contract (Symbol: HTE) trading on CME.
- **S&P Cryptocurrency MegaCap CME Futures Index.** The index measures the performance of holding long positions in the nearest maturing monthly Bitcoin and Ether futures contracts trading on CME.

¹ Spot indices are available for the Cryptocurrency Futures Indices.

Supporting Documents

This methodology is meant to be read in conjunction with supporting documents providing greater detail with respect to the policies, procedures and calculations described herein. References throughout the methodology direct the reader to the relevant supporting document for further information on a specific topic. The list of the main supplemental documents for this methodology and the hyperlinks to those documents is as follows:

Supporting Document	URL
S&P Dow Jones Indices' Commodities Indices Policies & Practices Methodology	Commodities Indices Policies & Practices
S&P Dow Jones Indices' Index Mathematics Methodology	Index Mathematics Methodology

This methodology was created by S&P Dow Jones Indices to achieve the aforementioned objective of measuring the underlying interest of each index governed by this methodology document. Any changes to or deviations from this methodology are made in the sole judgment and discretion of S&P Dow Jones Indices so that the index continues to achieve its objective.

Index Construction

Roll Frequency Schedule

Each ER and TR index is constructed from futures contracts and includes a provision for the replacement of the index futures contracts as the contracts approach maturity (also referred to as “rolling” or “the roll”).

Index	Roll Frequency
S&P 500 Futures Index	Quarterly
S&P 500 Futures (3 Day Roll) Index	
Dow Jones Industrial Average Futures Index	
S&P U.S. Dollar Futures Index	
S&P Japanese Yen Futures Index	
S&P Australian Dollar Futures Index	
S&P Euro Futures Index	
S&P CME Bitcoin Futures Daily Roll Index (USD)	Daily
S&P CME Bitcoin Futures Index (USD)	Monthly ²
S&P CME Ether Futures Index (USD)	
S&P Cryptocurrency MegaCap CME Futures Index (USD)	

Equity and Currency Futures indices. Except for the S&P 500 Futures (3-Day Roll) Index, the replacement for these indices occurs over a one-day rolling period every March, June, September, and December, effective after the close of trading five business days preceding the last trading date of the futures contract.

S&P 500 Futures (3 Day Roll) Index. The replacement occurs over a three-day roll period quarterly in March, June, September, and December, effective after the close of the 6th, 7th, and 8th business day³ preceding the last trading date of the futures contract. The indices roll quarterly and distribute the weights equally each day over a three-day roll period.

Date of the Roll Period	Current Roll Out Contract Weight	Roll In Contract Weight
Day 1	2/3	1/3
Day 2	1/3	2/3
Day 3	0	1

Cryptocurrency Futures Indices. Except for the S&P CME Bitcoin Futures Daily Roll Index, the replacement occurs over a five-day roll period every month, effective prior to the open of trading five business days preceding the last trading date of the futures contract. The last trading date of the Bitcoin and Ether futures contracts is the last Friday of the contract month. The indices roll monthly and distribute the weights 20% each day over a five-day roll period.

Date of the Roll Period	Current Roll Out Contract Weight	Roll In Contract Weight
Day 1	0.8	0.2
Day 2	0.6	0.4
Day 3	0.4	0.6
Day 4	0.2	0.8
Day 5	0	1

² Spot indices are available for the cryptocurrency futures indices and roll one day earlier than the ER and TR indices.

³ A business day is defined as a day when the CME is open for trading.

S&P Cryptocurrency MegaCap CME Futures Index. The index is designed to reflect the relative significance of each of the constituent cryptocurrencies to the underlying digital asset market. The market capitalization (or Dollar Weight) of the Bitcoin or Ether futures contract in the index is calculated as the product of the Contract Production Weights (CPWs) multiplied by the respective futures price. At each quarterly re-weighting, the new CPW of each designated constituent cryptocurrency futures contract is set to be the “Effective Coin Supply” of the respective underlying digital asset, determined as of the end of February, May, August, and November. The re-weighting is implemented over the regularly scheduled five-day roll period in March, June, September, and December (Quarterly Rolls).

For more information on Effective Coin Supply, please refer to the Effective Coin Supply and Glossary Sections of the S&P DJI Digital Assets Policies & Practices and Index Mathematics Methodology.

For more information on CPWs, please refer to the S&P GSCI Methodology, available at www.spglobal/spdji.com.

S&P CME Bitcoin Futures Daily Roll Index. The contracts roll daily and is completed two days prior to the last trading date (t) of the current contract. On day $t-2$ at market close, the index is 0% in the expiring futures contract (Roll Out Contract, that expires two days later) and 100% in the next futures contract (Roll In Contract, which expires the subsequent month). The last trading date is the last Friday of the contract month. The daily roll percentage is determined on the day when the index is fully rolled from the first month contract to the second month contract and stays constant throughout the month regardless of limit disruption events.

Contract Roll Weights Calculation During Roll Period	First Nearby Contract Expiration	Roll Contract Expiration
Day 1	(1-1/N)	1/N
Day 2	(1-2/N)	2/N
Day 3	(1-3/N)	3/N
Day N*	0	1

Cryptocurrency Futures Indices Contract Calendar. The following table identifies the contracts included in the indices.

Trading Facility	Commodity	Ticker ⁽¹⁾	Designated Contract Expirations at Month Begin											
			1	2	3	4	5	6	7	8	9	10	11	12
CME	Bitcoin	BTC	F	G	H	J	K	M	N	Q	U	V	X	Z
CME	Ether	HTE	F	G	H	J	K	M	N	Q	U	V	X	Z

(1) Tickers are Refinitiv RIC Codes.

For more information on Market Disruptions during the Roll Period, please refer to the Market Disruption Events and Holidays During Roll Period Section of the S&P DJI Commodities Policies & Practices Methodology.

Calculation of Excess Return Index

Each ER index calculates from the price change of the underlying futures contract. On any trading date, t , the level of each of the sub-indices is calculated as follows:

$$ERIndex_t = ERIndex_{t-1} * (1 + CDR_{t,t-1})$$

where:

$ERIndex_{t-1}$ = The Excess Return Index level on the preceding business day, defined as any date on which the index is calculated.

$CDR_{t,t-1}$ = The Contract Daily return, defined as:

$$CDR_{t,t-1} = \frac{DCRP_t}{DCRP_{t-1}} - 1$$

where:

$DCRP$ = The Daily Contract Reference Price of the futures contract.⁴

When the index rolls on multiple days, CDR calculates as:

$$CDR_{t,t-1} = \frac{DCRP_t}{DCRP_{t-1}} - 1$$

$$CDR_{t,t-1} = \frac{\sum w_{i,t-1} * DCRP_{i,t}}{\sum w_{i,t-1} * DCRP_{i,t-1}} - 1$$

where:

$DCRP_i$ = The Daily Contract Reference Price of the i^{th} futures contract

w_i = Weight of the i^{th} futures contract

Calculation of Total Return Index

Each TR index calculates as follows:

$$TRIndex_t = TRIndex_{t-1} * IndexTotalReturn_t$$

where:

$TRIndex_{t-1}$ = The Total Return Index level on the preceding business day.

Calculation of Index Total Return

For a funded investment, the total return between dates $t-1$ and t includes the risk-free return for the initial cash outlay is calculated as follows:

$$IndexTotalReturn_t = (1 + CDR_{t,t-1} + CashRate_t)$$

where the $CashRate_t$ can be TBR_t or FFR_t :

TBR_t = The daily-compounding Treasury Bill rate, as determined by the following formula:

$$TBR_t = \left[\frac{1}{1 + \frac{91}{360} * TBAR_{t-1}} \right]^{\frac{Delta_t}{91}} - 1$$

where:

$Delta_t$ = The number of calendar days between the current and previous business days.

$TBAR_{t-1}$ = The most recent weekly high discount rate for 91-day U.S. Treasury bills, effective on the preceding business day.⁵

FFR_t = The simple Fed Funds rate, as determined by the following formula:

$$FFR_t = FedFunds_{t-1} * \frac{ACT(t,t-1)}{N} - 1$$

where:

⁴ The official close, as designated by the relevant exchange, is used.

⁵ Generally, the rates are announced by the U.S. Treasury each Monday. On Mondays that are bank holidays, Friday's rates will apply. The day count convention used is ACT/360.

$ACT(t, t-1)$ = The actual calendar days between day t (exclusive) and day $t-1$ (inclusive)

N = 360 (number of days in a year)

The table below lists the total return indices and corresponding cash rate.

Index	Cash Rate
S&P 500 Futures Total Return Index	TBR
S&P 500 Futures (Fed Funds) Total Return Index	FFR
S&P 500 Futures (3 Day Roll) Total Return Index	TBR
Dow Jones Industrial Average Futures Total Return Index	TBR
DJIA Futures Index (Fed Funds) (USD) TR	FFR
S&P U.S. Dollar Futures Total Return Index	TBR
S&P Japanese Yen Futures Total Return Index	TBR
S&P Australian Dollar Futures Total Return Index	TBR
S&P Euro Futures Total Return Index	TBR
S&P CME Bitcoin Futures Daily Roll Index (USD) TR	TBR
S&P CME Bitcoin Futures Index (USD) TR	TBR
S&P CME Ether Futures Index (USD) TR	TBR
S&P Cryptocurrency MegaCap CME Futures Index (USD) TR	TBR

Currency of Calculation and Additional Index Return Series

S&P 500 Futures KRW Hedged (Fed Funds) (3PM KST Rate) Index. The index calculates in Korean won, and hedges using the 3:00 PM Korean standard rate.

S&P 500 Futures (3 Day Roll) TWAP (3:20-3:30 PM) Index. The index calculates the S&P 500 Futures (3 Day Roll) Index Time-Weighted Average Prices (TWAP) snapped during a window of 3:20-3:30PM.

For more information on TWAP calculation, please refer to the Alternative Pricing section in S&P Dow Jones Indices' Index Mathematics Methodology.

In addition to the indices detailed in this methodology, additional return series versions of the indices may be available, including, but not limited to: currency, currency hedged, decrement, fair value, inverse, leveraged, and risk control versions. For a list of available indices, please refer to the [S&P DJI Methodology & Regulatory Status Database](#).

For information on the calculation of different types of indices, please refer to S&P Dow Jones Indices' Index Mathematics Methodology.

For the inputs necessary to calculate certain types of indices, including decrement, dynamic hedged, fair value, and risk control indices, please refer to the Parameters documents available at www.spglobal/spdji.com.

Index Governance

Index Committee

An S&P Dow Jones Indices Index Committee maintains the indices. The Index Committee may revise index policy covering rules for including currencies, the timing of rebalancing or other matters. S&P Dow Jones Indices' considers information about changes to its indices and related matters to be potentially market moving and material. Therefore, all Index Committee discussions are confidential.

S&P Dow Jones Indices' Index Committees reserve the right to make exceptions when applying the methodology if the need arises. In any scenario where the treatment differs from the general rules stated in this document or supplemental documents, clients will receive sufficient notice, whenever possible.

In addition to the daily governance of indices and maintenance of index methodologies, at least once within any 12-month period, the Index Committee reviews the methodology to ensure the indices continue to achieve the stated objectives, and that the data and methodology remain effective. In certain instances, S&P Dow Jones Indices may publish a consultation inviting comments from external parties.

For information on Quality Assurance and Internal Reviews of Methodology, please refer to S&P Dow Jones Indices' Commodities Indices Policies & Practices Methodology.

Index Policy

Announcements

Rebalancing announcements, if needed, are made two days prior to the rebalancing date.

For more information, please refer to the Announcements section of S&P Dow Jones Indices' Commodities Indices Policies & Practices Methodology.

Holiday Schedule

The indices are calculated daily, throughout the calendar year. The indices follow the NYSE holiday schedule.

A complete holiday schedule for the year is available at www.spglobal/spdji.com.

For information on Calculations and Pricing Disruptions, Market Disruption Events and Holidays During Roll Period, Expert Judgment, Data Hierarchy, Unexpected Exchange Closures and Error Corrections, please refer to S&P Dow Jones Indices' Commodities Indices Policies & Practices Methodology.

Contact Information

For questions regarding an index, please contact: index_services@spglobal.com.

Index Dissemination

Index levels are available through S&P Dow Jones Indices' Web site at www.spglobal/spdji.com, major quote vendors (see codes below), numerous investment-oriented Web sites, and various print and electronic media.

Tickers

The table below lists headline indices covered by this document. All versions of the below indices that may exist are also covered by this document. Please refer to the [S&P DJI Methodology & Regulatory Status Database](#) for a complete list of indices covered by this document.

Index	Bloomberg
S&P 500 Futures Excess Return Index	SPXFP
S&P 500 Futures Total Return Index	SPXFTR
S&P 500 Futures (Fed Funds) Index (USD) TR	SPXFFFUT
S&P 500 Futures Index (3-Day Roll) (USD) ER	SPXF3RE
S&P 500 Futures Index (3-Day Roll) (USD) TR	SPXF3RT
S&P 500 Futures (3-Day Roll) TWAP (3:20-3:30 PM) Index (USD) ER	SPXF3RWE
S&P 500 Futures (3-Day Roll) TWAP (3:20-3:30 PM) Index (USD) TR	SPXF3RWT
Dow Jones Industrial Average Futures Excess Return Index	DJIAFP
Dow Jones Industrial Average Futures Total Return Index	DJIAFTR
S&P U.S. Dollar Futures Excess Return Index	SPUSDP
S&P U.S. Dollar Futures Total Return Index	SPUSDTR
S&P Japanese Yen Futures Excess Return Index	SPJPYFP
S&P Japanese Yen Futures Total Return Index	SPJPYFTR
S&P Australian Dollar Futures Excess Return Index	SPAUDFP
S&P Australian Dollar Futures Total Return Index	SPAUDFTR
S&P Euro Futures Excess Return Index	SPEUFP
S&P Euro Futures Total Return Index	SPEUFTR
S&P 500 Futures KRW Hedged (Fed Funds) (3PM KST Rate) Index	SPXFFKHT
S&P CME Bitcoin Futures Daily Roll Index (USD)	SPBTFDU
S&P CME Bitcoin Futures Daily Roll Index (USD) ER	SPBTFDUE
S&P CME Bitcoin Futures Daily Roll Index (USD) TR	SPBTFDUT

Index Data

Daily index level data is available via subscription.

For product information, please contact S&P Dow Jones Indices, www.spglobal/spdji.com/contact-us.

Web site

For further information, please refer to S&P Dow Jones Indices' Web site at www.spglobal/spdji.com.

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