

**S&P Economic Cycle Factor
Rotator Indices
*Methodology***

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Introduction

Index Objective and Highlights

The S&P Economic Cycle Factor Rotator Indices (“Rotator Indices”)¹ measure the performance of a rotational strategy across four sub-indices. The weight of each sub-index is determined by an economic indicator applicable to each underlying index’s region.

Strategy Series

The Economic Cycle Factor Rotator strategies share the above objective. The strategies are:

- **Equity Only Strategies.** The equity only strategies are long only without additional risk control overlays.
- **Risk Control 2 Strategies (futures & cash bond).** The risk control 2 strategies use volatility-targeted portfolios of equities and fixed income (either bond futures or cash bonds).
- **Long/Short Strategies.** The long/short strategies seek to be market neutral for a factor strategy when the short-term moving average of the S&P 500 is lower than the long-term moving average, and are allocated to a factor strategy when the short-term moving average is greater than or equal to the long-term moving average.

The sub-indices are calculated on a daily risk control basis with a target volatility of 6%. Each daily risk-controlled sub-index consists of one component equity index and one component fixed income index.

Rotator Index	Strategy	Strategy Universe	Risk Control Sub-index	Economic Indicator
S&P Economic Cycle Factor Rotator Index (“U.S. Rotator Index”)	Momentum	S&P United States LargeMidCap	S&P Momentum Daily Risk Control 6% Excess Return Index	The Chicago Fed National Activity Index (“CFNAI”)
	Value	S&P 500	S&P Value Daily Risk Control 6% Excess Return Index	
	Buyback	S&P 500	S&P Buyback Daily Risk Control 6% Excess Return Index	
	Low Volatility High Dividend	S&P 500	S&P Low Volatility High Dividend Daily Risk Control 6% Excess Return Index	
S&P Europe 350 Economic Cycle Factor Rotator Index (“European Rotator Index”) ²	Momentum	S&P Europe 350	S&P Europe 350 Momentum Daily Risk Control 6% Index (EUR) ER	OECD Europe Composite Leading Indicator (“CLI”) ³
	Value		S&P Europe 350 Enhanced Value Daily Risk Control 6% Index (EUR) ER	
	Buyback		S&P Europe 350 Buyback Daily Risk Control 6% Index (EUR) ER	
	Low Volatility High Dividend		S&P Europe 350 Low Volatility High Dividend Daily Risk Control 6% Index (EUR) ER	

¹ The Rotator Indices have variants using different types of equity components and fixed income components. For further details, please refer to *Eligibility Criteria* and *Index Construction* on the following pages.

² The European Rotator Index is also available on a non-excess return basis using component equity indices based on their price returns.

³ OECD (2018), Europe Composite leading indicator. Amplitude adjusted (CLI) (indicator). doi: 10.1787/4a174487-en

Economic Indicators

The Chicago Fed National Activity Index (“CFNAI”). The CFNAI is a weighted average of 85 indicators of U.S. economic activity drawn from four broad data categories:

- Production and income
- Personal consumption and housing
- Employment, unemployment, and hours
- Sales, orders, and inventories

A zero value for the index indicates that the national economy is expanding at its historical trend rate of growth; negative values indicate below-average growth; and positive values indicate above-average growth.

The CFNAI data, representing the previous month’s activity, is typically released around the 21st of each month. Current CFNAI data are available at the Federal Reserve Bank of Chicago’s Web site at www.chicagofed.org/research/data/cfnai/current-data. The new monthly signal is announced three business days prior to the month end and is implemented on the close of the first business day of the following month.

OECD Europe Composite Leading Indicator (“CLI”). The composite leading indicator (CLI) is designed to provide early signals of turning points in business cycles showing fluctuation of the economic activity around its long term potential level. The OECD aims for the turning points of the CLI to consistently precede those of the business cycle, typically by 6- 9 months (lead time varies).

CLIs show short-term economic movements in qualitative rather than quantitative terms. The long-term average of the amplitude adjusted CLI is 100 which represents the trend of economic activity.

The OECD CLIs are compiled and published on a monthly basis. The input data for a given month “t” is available in month “t+2” and is available at the OECD Data website at data.oecd.org/leadind/composite-leading-indicator-cli.htm. The latest ten months of available indicator levels are used to determine a monthly signal which is announced three business days prior to month end and is implemented on the close of the first business day of the following month.

Please refer to Index Construction for details on each sub-index’s allocation to equity and fixed income, and the rule according to which the Rotator Index allocates among the four sub-indices based on current and historical economic indicator data.

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’ Equity Indices Policies & Practices Methodology	Equity Indices Policies & Practices
S&P Dow Jones Indices’ Index Mathematics Methodology	Index Mathematics Methodology
S&P Dow Jones Indices’ Fixed Income Policies & Practices Methodology	Fixed Income Policies & Practices
S&P Dow Jones Indices’ Fixed Income 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.

Eligibility Criteria

Index Eligibility

The eligible component indices used to represent the sub-indices are detailed in the tables below.

S&P Economic Cycle Factor Rotator Index (“U.S. Rotator Index”)

Sub-index	Asset Class	Sub-Components		Ticker
S&P Momentum Daily Risk Control 6% Excess Return Index	Equity	S&P Momentum United States LargeMidCap (USD) Excess Return ⁴		SPUSMUE
	Fixed Income	Bond Future	S&P 5-Year U.S. Treasury Note Futures Excess Return Index	SPUST5P
		Cash Bond ⁵	S&P U.S. Treasury Bond 5-7 Year Excess Return Index	
	Cash ⁶	2 Month US Dollar LIBOR interest rate		US0002M
3 Month US Dollar LIBOR interest rate		US0003M		

Sub-index	Asset Class	Sub-Components		Ticker
S&P Value Daily Risk Control 6% Excess Return Index	Equity	S&P 500 Pure Value Excess Return ⁵		500PVER
	Fixed Income	Bond Future	S&P 5-Year U.S. Treasury Note Futures Excess Return Index	SPUST5P
		Cash Bond ⁵	S&P U.S. Treasury Bond 5-7 Year Excess Return Index	
	Cash ⁶	2 Month US Dollar LIBOR interest rate		US0002M
3 Month US Dollar LIBOR interest rate		US0003M		

Sub-index	Asset Class	Sub-Components		Ticker
S&P Buyback Daily Risk Control 6% Excess Return Index	Equity	S&P 500 Buyback FCF Index Excess Return ⁵		SPBUYFUER
	Fixed Income	Bond Future	S&P 5-Year U.S. Treasury Note Futures Excess Return Index	SPUST5P
		Cash Bond ⁵	S&P U.S. Treasury Bond 5-7 Year Excess Return Index	
	Cash ⁶	2 Month US Dollar LIBOR interest rate		US0002M
3 Month US Dollar LIBOR interest rate		US0003M		

Sub-index	Asset Class	Sub-Components		Ticker
S&P Low Volatility High Dividend Daily Risk Control 6% Excess Return Index	Equity	S&P 500 Low Volatility High Dividend Excess Return ⁵		SP5LVHDE
	Fixed Income	Bond Future	S&P 5-Year U.S. Treasury Note Futures Excess Return Index	SPUST5P
		Cash Bond ⁵	S&P U.S. Treasury Bond 5-7 Year Excess Return Index	
	Cash ⁶	2 Month US Dollar LIBOR interest rate		US0002M
3 Month US Dollar LIBOR interest rate		US0003M		

For information on the component equity indices, please refer to the *S&P Momentum Indices Methodology*, *S&P U.S. Style Indices Methodology*, *S&P Buyback FCF and PE Indices Methodology*, and *S&P Low Volatility High Dividend Indices Methodology*, respectively. In conjunction with these methodologies, please refer to *S&P Dow Jones Indices' Index Mathematics Methodology* for details on excess return index calculations. These documents are available at www.spdji.com.

⁴ The U.S. Rotator Index is available in two excess return types; using component equity indices based on either their price returns or total returns.

⁵ The Rotator Index and Cash Bond index use the Bond Futures Index and the Cash Bond Index as their respective fixed income components.

⁶ Cash items are used in calculating the excess return; the indices do not hold cash.

S&P Europe 350 Economic Cycle Factor Rotator Index (“European Rotator Index”)⁷

Sub-index	Asset Class	Sub-Components		Ticker
S&P Europe 350 Momentum Daily Risk Control 6% Index (EUR) ER	Equity	S&P Europe 350 Momentum Excess Return Index (EUR)		SP350MEPE
	Fixed Income	Bond Future	S&P Euro-Bund Futures Excess Return Index	SPEUBDP
	Cash ⁸	1 Month EURIBOR interest rate		EU0001M
		3 Month EURIBOR interest rate		EU0003M

Sub-index	Asset Class	Sub-Components		Ticker
S&P Europe 350 Enhanced Value Daily Risk Control 6% Index (EUR) ER	Equity	S&P Europe 350 Enhanced Value Excess Return Index (EUR)		SPEEVEPE
	Fixed Income	Bond Future	S&P Euro-Bund Futures Excess Return Index	SPUST5P
	Cash ⁸	1 Month EURIBOR interest rate		EU0001M
		3 Month EURIBOR interest rate		EU0003M

Sub-index	Asset Class	Sub-Components		Ticker
S&P Europe 350 Buyback Daily Risk Control 6% Index (EUR) ER	Equity	S&P Europe 350 Buyback Excess Return Index (EUR)		SPEBBEPE
	Fixed Income	Bond Future	S&P Euro-Bund Futures Excess Return Index	SPUST5P
	Cash ⁸	1 Month EURIBOR interest rate		EU0001M
		3 Month EURIBOR interest rate		EU0003M

Sub-index	Asset Class	Sub-Components		Ticker
S&P Europe 350 Low Volatility High Dividend Daily Risk Control 6% Index (EUR) ER	Equity	S&P Europe 350 Low Volatility High Dividend Excess Return Index (EUR)		SPEULVDPE
	Fixed Income	Bond Future	S&P Euro-Bund Futures Excess Return Index	SPUST5P
	Cash ⁸	1 Month EURIBOR interest rate		EU0001M
		3 Month EURIBOR interest rate		EU0003M

For information on the component equity indices, please refer to the *S&P Momentum Indices Methodology*, *S&P Enhanced Value Indices Methodology*, *S&P Europe 350 Buyback Index Methodology*, and *S&P Low Volatility High Dividend Indices Methodology*, respectively. In conjunction with these methodologies, please refer to *S&P Dow Jones Indices’ Index Mathematics Methodology* for details on excess return index calculations. These documents are available at www.spdji.com.

For information on the component fixed income index, please refer to the *S&P Global Bond Futures Index Series Methodology* available at www.spdji.com.

⁷ The European Rotator Index is also available on a non-excess return basis using component equity indices based on their price returns.

⁸ Cash items are used in calculating the excess return; the indices do not hold cash.

Index Construction

Approach

Four target sub-indices are created as the basis for each S&P Economic Cycle Factor Rotator Index (“Rotator Index”). On a monthly basis, the Rotator Index allocates to one of these four target sub-indices depending on its corresponding economic indicator, based on the Target Style Allocation Scheme.

Component Equity Indices

Each sub-index includes a component equity index. Different versions of the component equity indices are calculated as follows:

S&P Economic Cycle Factor Rotator Index (“U.S. Rotator Index”)

- Excess return on the underlying index’s price return
- Excess return on the underlying index’s total return

S&P Europe 350 Economic Cycle Factor Rotator Index (“European Rotator Index”)

- Excess return on the underlying index’s price return
- Underlying index’s price return (reflecting no dividends or borrowing costs)

For information on excess return calculations, please refer to S&P Dow Jones Indices’ S&P Index Mathematics Methodology.

Sub-Indices

The next step in the formation of the Rotator Index is to determine the Sub-Indices. Please refer to *Appendix I* for more details on the Sub-Index calculation.

Calculation of Risk Control Sub-indices

The next step in the formation of the Rotator Index is to calculate each Sub-Index level. For information on the calculation of the Risk Control version, please see the Risk Control 2.0 section of S&P Dow Jones Indices’ S&P Index Mathematics Methodology document.

Target Style Allocation Scheme

The next step in the formation of the Rotator Index is to determine to which Sub-Index to allocate. This is based on the three-month average and change of the corresponding economic indicator (“Indicator”). For each month, k , the three-month average and change of the indicator are defined as follows:

$$3M \text{ Average}(k) = \frac{1}{3} * \{Indicator(k) + Indicator(k - 1) + Indicator(k - 2)\}$$

$$3M \text{ Change}(k) = Indicator(k) - Indicator(k - 3)$$

where:

$Indicator(k)$ = The most recent value of the Indicator available as of month k

$Indicator(k-j)$ = The Indicator value for the j^{th} month prior to the most recent available as of month k

If restated values are available for previous months, they will be used in the calculation of the current three-month average and three-month change. However, the index will not revise previously calculated averages and change rates from previous index rebalance events.

On the first trading day of each calendar month, the target style Equity Allocated Index (k) is determined as follows:

1. If $3M\ Average(k - lag) \geq Center\ Line$, $3M\ Change(k - lag) \geq 0$, then Signal (k) is Momentum
2. If $3M\ Average(k - lag) < Center\ Line$, $3M\ Change(k - lag) \geq 0$, then Signal (k) is Value
3. If $3M\ Average(k - lag) \geq Center\ Line$, $3M\ Change(k - lag) < 0$, then Signal (k) is Buyback
4. If $3M\ Average(k - lag) < Center\ Line$, $3M\ Change(k - lag) < 0$, then Signal (k) is Low Volatility High Dividend

where:

For the U.S. Rotator:

Center Line = 0 and Lag = 0

If Signal (k) = Low Volatility High Dividend and Signal ($k-1$) = Value, then Equity Allocated Index (k) = Value. Otherwise Equity Allocated Index (k) = Signal (k).

For the European Rotator:

Center Line = 100 and Lag⁹ = 6

If the set of signals $\{Signal(k + i) \mid i\ from\ 1\ to\ 6\}$ contains Equity Allocated Index ($k-1$)^{*}, then Equity Allocated Index (k) = Equity Allocated Index ($k-1$). Otherwise Equity Allocated Index (k) = Signal (k).

At each monthly rebalancing, an indicator vector, \vec{v}_t , is used to identify the target portfolio deployed at time t and is defined as follows:

For month k ,

If Equity allocated index (k) is Momentum, then $\vec{v}_t = \{1,0,0,0\}$

If Equity allocated index (k) is Value, then $\vec{v}_t = \{0,1,0,0\}$

If Equity allocated index (k) is Buyback, then $\vec{v}_t = \{0,0,1,0\}$

If Equity allocated index (k) is Low Volatility High Dividend, then $\vec{v}_t = \{0,0,0,1\}$

Furthermore, \vec{v}_t^i returns the i^{th} value of the vector at time t . For example, if the style at time t is 3, then $\vec{v}_t^3 = 1$, and $\vec{v}_t^1 = \vec{v}_t^2 = \vec{v}_t^4 = 0$.

⁹ Since the OECD Europe Composite Leading Indicator ("CLI") is a leading indicator and early signals of turning points typically precede the business cycle by 6-9 months, then the target style allocation scheme employs a lag in the CLI data accordingly.

^{*} Equity Allocated Index ($k-1$) equals the Equity Allocated Index calculated as of the previous rebalancing.

Index Returns and Level Calculations

The next step in the formation of the Rotator Index is to calculate the daily index returns and levels for each Sub-Index. The daily index levels of the Rotator Index in any given month are calculated using the daily returns of the target portfolio selected for the given month. Let each Risk Controlled sub-index for each target portfolio style be defined as:

$$\begin{aligned} \text{Momentum} &= \text{Subindex}_t^1 \\ \text{Value} &= \text{Subindex}_t^2 \\ \text{Buyback} &= \text{Subindex}_t^3 \\ \text{Low Volatility High Dividend} &= \text{Subindex}_t^4 \end{aligned}$$

The final step in the formation of the Rotator Index is to calculate the overall Rotator Index return and level. Using the indicator vector as defined above, \vec{v}_t , the daily returns are computed by summing the four style risk controlled sub-indices. The indicator serves to select the appropriate target portfolio for time t .

$$\text{IndexDailyReturn}_t = \sum_{i=1}^4 \vec{v}_t^i \left(\frac{\text{Subindex}_t^i}{\text{Subindex}_{rebalancing}^i} - 1 \right)$$

$$\text{IndexValue}_t = \text{IndexValue}_{t-1} * (1 + \text{IndexDailyReturns}_t)$$

Equity-Only Rotator Indices

The Equity-Only Rotator Indices allocate among the same set of Target Strategies, but the sub-indices equate directly to the underlying component equity indices only. There is no excess return calculation or risk control calculation involved in these indices.

Each Target Strategy is represented as shown below:

Rotator Index	Target Strategy	Equity Index
S&P Economic Cycle Factor Rotator Index ("U.S. Rotator Index")	Momentum	S&P Momentum United States LargeMidCap Index (US Dollar)
	Value	S&P 500 Pure Value
	Buyback	S&P 500 Buyback FCF Index
	Low Volatility High Dividend	S&P 500 Low Volatility High Dividend Index
S&P Europe 350 Economic Cycle Factor Rotator Index ("European Rotator Index")	Momentum	S&P Europe 350 Momentum Index (EUR)
	Value	S&P Europe 350 Enhanced Value Index (EUR)
	Buyback	S&P Europe 350 Buyback Index (EUR)
	Low Volatility High Dividend	S&P Europe 350 low Volatility High Dividend Index (EUR)

There are three versions of the Equity-Only Rotator Indices, in which the equity index that represents each target strategy will all be based on the Price Return, Total Return, or Net Total Return index values.

The target strategy allocation determination is based on each indices corresponding economic indicator, and is conducted the same way as detailed above in the "Target Style Allocation Scheme" section.

The Equity-Only Rotator Index level is calculated in the same was as detailed above in the "Index Returns and Level calculations" section.

Long/Short Rotator Indices

The S&P Economic Cycle Factor Rotator Dynamic Long/Short Index (USD) ER index allocates among the same set of Target and Smart Beta Strategies based on the economic signal. The sub-index for the targeted strategy is selected between a Beta Risk Control Sub-Index (Long Smart Beta, Short Cash, 6% Risk Control) and an Alpha Risk Control Sub-Index (Long Smart Beta, Short S&P 500 Total Return Index, 6% Risk Control) based on a market momentum signal. If the 1-month (21-day) moving average of the S&P 500 is below its 18-month (375-day) moving average at end of the month, then the index will allocate to the Alpha Risk Control Sub-Index for the next month. Else it will allocate to the Beta Risk Control Sub-Index. The index is available only in one excess return type based on the price returns of the component equity indices.

Each Target Strategy is represented as shown below:

Sub-index	Asset Class	Sub-Components		Ticker
S&P Momentum Daily Risk Control 6% Long/Short Excess Return Index ("Alpha Risk Control")	Equity	S&P Momentum United States LargeMidCap (USD) Long/Short Excess Return		SPUSMULS
	Fixed Income	Bond Future	S&P 5-Year U.S. Treasury Note Futures Excess Return Index	SPUST5P
	Cash ¹⁰	2 Month US Dollar LIBOR interest rate		US0002M
		3 Month US Dollar LIBOR interest rate		US0003M

Sub-index	Asset Class	Sub-Components		Ticker
S&P Value Daily Risk Control 6% Long/Short Excess Return Index ("Alpha Risk Control")	Equity	S&P 500 Pure Value Long/Short Excess Return		500PVLS
	Fixed Income	Bond Future	S&P 5-Year U.S. Treasury Note Futures Excess Return Index	SPUST5P
	Cash ¹⁰	2 Month US Dollar LIBOR interest rate		US0002M
		3 Month US Dollar LIBOR interest rate		US0003M

Sub-index	Asset Class	Sub-Components		Ticker
S&P Buyback Long/Short Daily Risk Control 6% Excess Return Index ("Alpha Risk Control")	Equity	S&P 500 Buyback FCF Index Long/Short Excess Return		SPBUYFULS
	Fixed Income	Bond Future	S&P 5-Year U.S. Treasury Note Futures Excess Return Index	SPUST5P
	Cash ¹⁰	2 Month US Dollar LIBOR interest rate		US0002M
		3 Month US Dollar LIBOR interest rate		US0003M

Sub-index	Asset Class	Sub-Components		Ticker
S&P Low Volatility High Dividend Long/Short Daily Risk Control 6% Excess Return Index ("Alpha Risk Control")	Equity	S&P 500 Low Volatility High Dividend Long/Short Excess Return		SP5LVHDLS
	Fixed Income	Bond Future	S&P 5-Year U.S. Treasury Note Futures Excess Return Index	SPUST5P
	Cash ¹⁰	2 Month US Dollar LIBOR interest rate		US0002M
		3 Month US Dollar LIBOR interest rate		US0003M

For information on excess return calculations, please refer to S&P Dow Jones Indices' S&P Index Mathematics Methodology.

¹⁰ Cash items are used in calculating the excess return; the indices do not hold cash.

Index Maintenance

Rebalancing

Each S&P Economic Cycle Factor Rotator Index is rebalanced monthly after the market close on the first business day of each month. Index allocation changes are typically announced three business days prior to the rebalancing date.

The target portfolios (sub-indices) are rebalanced in accordance with S&P Dow Jones Indices' Risk Control 2.0 Indices Methodology. The target portfolios for the equity-only versions are rebalanced in accordance with each respective underlying index methodology.

For information on the component equity indices, please refer to the S&P Momentum Indices Methodology, S&P U.S. Style Indices Methodology, S&P Enhanced Value Indices Methodology, S&P Buyback FCF and PE Indices Methodology, S&P Europe 350 Buyback Index Methodology and S&P Low Volatility High Dividend Indices Methodology, respectively.

For further information on the Risk Control 2.0 Methodology, please refer to S&P Dow Jones Indices' Index Mathematics Methodology. All methodologies are available at www.spdji.com.

Additions and Deletions. Component indices are not expected to change between rebalancing periods. If a constituent is discontinued, the Index Committee may elect to discontinue representation of the affected asset class within the index or designate a successor component index.

Currency, Currency Hedged, and Risk Control Indices

U.S. Rotator Indices and associated components are calculated in U.S. dollars. European Rotator Indices and their associated components are calculated in euros.

Additional currency, currency hedged, and risk control versions of the indices may be available. For a list of available currency, currency hedged, and risk control indices, please contact Client Services at index_services@spglobal.com.

For more information on currency, currency hedged, and risk control indices, please refer to S&P Dow Jones Indices' Index Mathematics Methodology.

Base Date and History Availability

Index history availability, base dates, and base values are shown in the table below.

Index ¹¹	Launch Date	First Value Date	Base Date	Base Value
U.S. Factor Rotator Indices				
S&P Economic Cycle Factor Rotator Index	08/16/2016	08/01/1995	08/01/1995	100
S&P Economic Cycle Factor Rotator (Cash Bond) Index (USD)	02/16/2018	08/01/1995	08/01/1995	100
S&P Economic Cycle Factor Rotator Dynamic Long/Short Index (USD) ER	12/21/2018	08/01/1995	08/01/1995	100
S&P Economic Rotator Index NTR – Equity Only	06/08/2017	01/02/2001	01/02/2001	100
S&P Economic Rotator Index PR – Equity Only	06/08/2017	07/03/1995	07/03/1995	100
S&P Economic Rotator Index TR – Equity Only	06/08/2017	07/03/1995	07/03/1995	100
S&P Momentum Daily Risk Control 6% Excess Return Index	08/16/2016	08/01/1995	08/01/1995	100
S&P Value Daily Risk Control 6% Excess Return Index	08/16/2016	08/01/1995	08/01/1995	100
S&P Buyback Daily Risk Control 6% Excess Return Index	08/16/2016	08/01/1995	08/01/1995	100
S&P Low Volatility High Dividend Daily Risk Control 6% Excess Return Index	08/16/2016	08/01/1995	08/01/1995	100
S&P Momentum United States LargeMidCap Daily Risk Control 6% Long/Short Index (USD) ER	12/21/2018	08/01/1995	08/01/1995	100
S&P 500 Pure Value Daily Risk Control 6% Long/Short Index (USD) ER	12/21/2018	08/01/1995	08/01/1995	100
S&P 500 Buyback Daily Risk Control 6% Long/Short Index (USD) ER	12/21/2018	08/01/1995	08/01/1995	100
S&P 500 Low Volatility High Dividend Daily Risk Control 6% Long/Short Index (USD) ER	12/21/2018	08/01/1995	08/01/1995	100
European Factor Rotator Indices				
S&P Europe 350 Economic Cycle Factor Rotator Index (EUR)	12/21/2018	24/01/2002	24/01/2002	100
S&P Europe 350 Economic Rotator Index (EUR) NTR – Equity Only	12/21/2018	24/01/2002	24/01/2002	100
S&P Europe 350 Economic Rotator Index (EUR) – Equity Only	12/21/2018	24/01/2002	24/01/2002	100
S&P Europe 350 Economic Rotator Index (EUR) TR – Equity Only	12/21/2018	24/01/2002	24/01/2002	100
S&P Europe 350 Momentum Daily Risk Control 6% Index (EUR) ER	12/21/2018	24/01/2002	24/01/2002	100
S&P Europe 350 Enhanced Value Daily Risk Control 6% Index (EUR) ER	12/21/2018	24/01/2002	24/01/2002	100
S&P Europe 350 Buyback Daily Risk Control 6% Index (EUR) ER	12/21/2018	24/01/2002	24/01/2002	100
S&P Europe 350 Low Volatility High Dividend Daily Risk Control 6% Index (EUR) ER	12/21/2018	24/01/2002	24/01/2002	100

¹¹ Dates and base values are the same for related index versions (i.e. those based on the component equity price return index and total return index or those based on excess return and non-excess return).

Index Governance

Index Committee

The S&P Dow Jones Indices' Factor Indices and Europe (EMEA) Indices Index Committees maintain the indices. All committee members are full-time professional members of S&P Dow Jones Indices' staff. The Committees meet regularly. At each meeting, the Committees may revise index policy covering rules for including other assets or asset classes, changes to target weight allocations, 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' Equity Indices Policies & Practices document.

Index Policy

Holiday Schedule

U.S. Rotator Indices and associated components are calculated on all U.S. equity market business days. European Rotator Indices and their associated components are calculated on all European equity market business days.

Complete holiday schedules for the year are available at www.spdji.com.

Rebalancing

The Index Committee may change the date of a given rebalancing for reasons including market holidays occurring on or around the scheduled rebalancing date. Any such change will be announced with proper advance notice where possible.

Unscheduled Exchange Closures

For information on Unexpected Exchange Closures, please refer to S&P Dow Jones Indices' Equity Indices Policies & Practices document.

Recalculation Policy

For information on the recalculation policy, please refer to S&P Dow Jones Indices' Equity Indices Policies & Practices document.

For information on Calculations and Pricing Disruptions, Expert Judgment and Data Hierarchy, please refer to S&P Dow Jones Indices' Equity Indices Policies & Practices document.

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.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 currency, currency hedged, risk control, and return type versions of the below indices that may exist are also covered by this document. Please contact index_services@spglobal.com for a complete list of indices covered by this document.

Index	Bloomberg
U.S. Factor Rotator Indices	
<i>Indices based on component equity price return indices:</i>	
S&P Economic Cycle Factor Rotator Index	SPECFR6P
S&P Economic Cycle Factor Rotator (Cash Bond) Index (USD)	SPECFR6B
S&P Economic Cycle Factor Rotator Dynamic Long/Short Index (USD) ER	SPECFR6S
S&P Economic Rotator Index PR – Equity Only	SPECFR6P
S&P Momentum Daily Risk Control 6% Excess Return Index (PR)	SPECFM6P
S&P Value Daily Risk Control 6% Excess Return Index (PR)	SPECFV6P
S&P Buyback Daily Risk Control 6% Excess Return Index (PR)	SPECFB6P
S&P Low Volatility High Dividend Daily Risk Control 6% Excess Return Index (PR)	SPECF6P
S&P Momentum United States LargeMidCap Daily Risk Control 6% Long/Short Index (USD) ER	SPECFMLS6P
S&P 500 Pure Value Daily Risk Control 6% Long/Short Index (USD) ER	SPECFVLS6P
S&P 500 Buyback Daily Risk Control 6% Long/Short Index (USD) ER	SPECFBLS6P
S&P 500 Low Volatility High Dividend Daily Risk Control 6% Long/Short Index (USD) ER	SPECFLLS6P
<i>Indices based on component equity total return indices:</i>	
S&P Economic Cycle Factor Rotator Index (TR)	SPECFR6T
S&P Economic Rotator Index TR – Equity Only	SPECFRT
S&P Momentum Daily Risk Control 6% Excess Return Index (TR)	SPECFM6T
S&P Value Daily Risk Control 6% Excess Return Index (TR)	SPECFV6T
S&P Buyback Daily Risk Control 6% Excess Return Index (TR)	SPECFB6T
S&P Low Volatility High Dividend Daily Risk Control 6% Excess Return Index (TR)	SPECF6T
<i>Indices based on component equity net total return indices:</i>	
S&P Economic Rotator Index NTR – Equity Only	SPECFRN
European Factor Rotator Indices	
<i>Indices based on component equity price return indices:</i>	
S&P Europe 350 Economic Cycle Factor Rotator Index (EUR) ER	SPEEC6EP
S&P Europe 350 Economic Cycle Factor Rotator Index (EUR)	SPEECF6P
S&P Europe 350 Economic Rotator Index (EUR)– Equity Only	SPEECFRP
S&P Europe 350 Momentum Daily Risk Control 6% Index (EUR) ER	SPEEM6EP
S&P Europe 350 Enhanced Value Daily Risk Control 6% Index (EUR) ER	SPEEV6EP
S&P Europe 350 Buyback Daily Risk Control 6% Index (EUR) ER	SPEEB6EP
S&P Europe 350 Low Volatility High Dividend Daily Risk Control 6% Index(EUR) ER	SPEEL6EP
S&P Europe 350 Momentum Daily Risk Control 6% Index (EUR)	SPEECM6P
S&P Europe 350 Enhanced Value Daily Risk Control 6% Index (EUR)	SPEECV6P
S&P Europe 350 Buyback Daily Risk Control 6% Index (EUR)	SPEECB6P
S&P Europe 350 Low Volatility High Dividend Daily Risk Control 6% Index (EUR)	SPEECL6P
<i>Indices based on component equity total return indices:</i>	
S&P Europe 350 Economic Rotator Index (EUR) TR – Equity Only	SPEECFRT
<i>Indices based on component equity net total return indices:</i>	
S&P Europe 350 Economic Rotator Index (EUR) NTR – Equity Only	SPEECFRN

Index Data

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Web site

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Appendix I

The four target portfolios (sub-indices) for each rotator index are calculated on a daily risk control basis with a target volatility of 6%, short-term decay factor of 94%, long-term decay factor of 97%, in accordance with S&P Dow Jones Indices' Risk Control 2.0 Indices Methodology. The sub-indices are each constructed from one factor-based equity index, and one fixed income index as shown below:

Target Strategy	Equity Index	Fixed Income Index
Momentum	S&P Momentum United States LargeMidCap (USD) Excess Return	S&P 5-Year U.S. Treasury Note Futures Excess Return Index Or S&P U.S. Treasury Bond 5-7 Year Excess Return Index
Value	S&P 500 Pure Value Excess Return	
Buyback	S&P 500 Buyback FCF Index Excess Return	
Low Volatility High Dividend	S&P 500 Low Volatility High Dividend Excess Return	S&P Euro-Bund Futures Excess Return Index
Momentum	S&P Europe 350 Momentum Daily Risk Control 6% Index (EUR) ER	
Value	S&P Europe 350 Enhanced Value Daily Risk Control 6% Index (EUR) ER	
Buyback	S&P Europe 350 Buyback Daily Risk Control 6% Index (EUR) ER	
Low Volatility High Dividend	S&P Europe 350 Low Volatility High Dividend Daily Risk Control 6% Index (EUR) ER	S&P Euro-Bund Futures Total Return Index
Momentum	S&P Europe 350 Momentum Daily Risk Control 6% Index (EUR)	
Value	S&P Europe 350 Enhanced Value Daily Risk Control 6% Index (EUR)	
Buyback	S&P Europe 350 Buyback Daily Risk Control 6% Index (EUR)	
Low Volatility High Dividend	S&P Europe 350 Low Volatility High Dividend Daily Risk Control 6% Index (EUR)	

The weightings of the equity and fixed income exposures within the four target portfolios are based on their individual portfolio volatilities, except for the following difference: when there is no solution to the quadratic, the weights are reduced until the target volatility is achieved, with the weights restricted to a maximum of 100% and a minimum of 0%.

For more information on the Risk Control 2.0 Indices Methodology and excess return index calculations, please refer to S&P Dow Jones Indices' Index Mathematics Methodology.

Appendix II

Methodology Changes

Methodology changes since August 16, 2016 are as follows:

Change	Effective Date (After Close)	Previous	Methodology Updated
Index Name Change: S&P Economic Cycle Factor Rotator Dynamic Long/Short Index (USD) ER	01/11/2019	The index name was "S&P Economic Cycle Factor Rotator Long/Short Index (USD) ER".	The index name is "S&P Economic Cycle Factor Rotator Dynamic Long/Short Index (USD) ER".

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