S&P Dow Jones Indices

A Division of S&P Global

UBS Risk Adjusted Dynamic Alpha (RADA) Index Guide

UBS

September 2022

S&P Dow Jones Indices: Index Methodology

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Significant Index Administration Events

UBS Risk Adjusted Dynamic Alpha (RADA) Index

Date	Index Administration Event
01 January 1997	Index Base Date
30 April 2007	Index Commencement Date
February 2016	IHS Markit Benchmark Administration Limited (IMBA UK) officially begins Index Administration
February 2016	IMBA UK Oversight Committee begins oversight of the Index
31 May 2021	IMBA UK officially ceases administration of MLTARADS, MLTARASX, and MLTARAUX Indices
22 November 2021	Use of Euro Overnight ICE LIBOR (EURONFSR=) and US Dollar Overnight ICE Libor (USDONFSR=) replaced with Euro Short-Term Rate (ESTR) and Secured Overnight Financing Rate (SOFR)

Index Overview

Index Objective

The objective of each RADA Index is to reflect the performance of a market timing strategy based upon the UBS Dynamic Equity Risk Indicator ("DERI") in order to rotate in and out of the respective underlying equity indices according to a strictly rules based methodology.

DERI is a Dynamic Equity Risk Indicator. It is calculated as a dynamic weighted average of the normalized regressions based on the 8 components listed below:

1. Equity index option implied volatility: VIX and VDAX.

2. Credit spreads: Moody's BAA spread over U.S. 10y treasuries.

3. Swap spreads: average of USD, JPY, EUR, and GBP 5y swap spreads

4. Currency volatility: average of 1m and 3m daily volatility in EUR, JPY, CHF, GBP, and AUD versus USD.

5. Cyclical versus defensive sector performance.

6. Excess performance of high-beta regions.

7. Excess performance of high-beta sectors.

8. Equity market momentum: MSCI AC World relative to its 200 day moving average.

DERI is an indicator and not an index and so acts as a calculation component/signal within the RADA indices. To see more information regarding DERI please see the Dynamic Equity Risk Indicator Guide.

Index Approach

The UBS Risk Adjusted Dynamic Alpha (RADA) Index rotates in and out of equity investments through the use of long and short positions in the Underlying Index (as defined below) whenever there is a change in trend, as indicated by the DERI, thereby aiming to achieve better returns than would be generated by holding purely static positions and/or the market generally.

The strategy seeks to take a long position in the EURO STOXX 50 Total Return Index or the S&P 500 Total Return Index or DAX 30 Index (each an "Underlying Index" or an "Index Component") when the DERI indicates bullish market conditions, and to take a short position in the relevant Index Component when the DERI indicates bearish market conditions, and to take a flat position by staying invested in cash when uncertain market conditions are detected by the DERI.

Determination of the Index Level

The UBS Risk Adjusted Dynamic Alpha (RADA) Index Level is calculated by the Index Administrator at the Valuation Time and is based on the published official closing price, level, or value of each Index Component on each Index Business Day. The Index Level is published on Bloomberg, Refinitiv, and the IHS Markit website (as well as made available to the "Index Owner") on the weekday following each Index Business Day. The Index Level was first published in respect of 30 April 2007 (the "Index Commencement Date"). On any day where the Index Level is not calculated (for example, on a Disrupted Day), no Index Level will be published in respect of such day. (Please see "Disrupted Day" in this document's *Definitions* chapter.)

The initial level of the index ("Index Base Level") and corresponding base dates ("Index Base Date") are as follows:

Table 1

Index	Index Currency	Bloomberg Page	Refinitiv Page	Index Base Date	Index Base Level
UBS RADA Europe Index – Net Total Return	EUR	MLTARADA Index	ULTARADA= UBSL	1 January 1997	100
UBS RADA U.S. Index - Net Total Return	USD	MLTARASP Index	ULTARASP= UBSL	1 January 1997	100
UBS RADA Germany Index - Net Total Return	EUR	MLTARADX Index	ULTARADX= UBSL	1 January 1997	100

Determination of the Value of Each Index Component

The UBS Risk Adjusted Dynamic Alpha (RADA) Index shall consist of a long or a short or a flat position in the related Index Component and an Underlying Cash Position if the Index is a total return index.

UBS Risk Adjusted Dynamic Alpha (RADA) Index Family

RADA Europe Indices

- UBS RADA Europe Index - Net Total Return (EUR)

- UBS RADA Germany Index - Net Total Return (EUR)

RADA U.S. Indices

- UBS RADA U.S. Index - Net Total Return (USD)

Index Selection Rules

The composition of the RADA comprises pre-defined equity indices to represent the markets being measured. These are described below.

Underlying Indices

Index Name	Underlying Index	Refinitiv Reuters Instrument Code (RIC)	Index Description
UBS RADA Europe Index – Net Total Return (EUR)	EURO STOXX 50 Index	.STOXX50ER	The EURO STOXX 50 Index provides a Blue-chip representation of supersector leaders in the Eurozone. The index covers 50 stocks from 12 Eurozone countries. The EURO STOXX 50 Index is licensed to financial institutions to serve as underlying for a wide range of investment products such as Exchange Traded Funds (ETF), Futures and Options, and structured products worldwide.
UBS RADA U.S. Index – Net Total Return (USD)	S&P 500 Total Return Index	.SPXTR	The S&P 500® is a large-cap U.S. equities benchmark. The index includes 500 leading companies and captures approximately 80% coverage of available market capitalization.
UBS RADA U.S. Index – Net Total Return (EUR)			
UBS RADA Germany Index – Net Total Return (EUR)	DAX 30 Index	GDAXI	The German Stock Index is a total return index of 30 selected German blue-chip stocks traded on the Frankfurt Stock Exchange. The equities use free float shares in the index calculation.

Other Components of Indices

The table below contains a list of interest rates used for related currencies:

Table 2

Currency	Refinitiv Code[1,2]
EUR	EUROSTR=
USD	USDSOFR=

The table below contains a list of Index Components and other parameters:

Table 3

k	Index	Index Currency	Index Component RIC	Index Component t Currency	v	$Cov_{k,c}$
1	UBS RADA Europe Index - Net Total Return	EUR	.STOXX50ER	EUR	1	0.00%
2	UBS RADA U.S. Index - Net Total Return	USD	.SPXTR	USD	1	0.00%
3	UBS RADA U.S. Index - Net Total Return	EUR	.SPXTR	USD	1	0.20%
4	UBS RADA Germany Index - Net Total Return	EUR	.GDAXI	EUR	1	0.00%

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[1] The Euro Overnight ICE LIBOR (EURONFSR=) was used as the EUR interest rate in index calculations until 21 November 2021.
[2] US Dollar Overnight ICE LIBOR (USDONFSR=) was used as the USD interest rate in index calculations until 21 November 2021.

Index Calculation

Rebalancing Process

Please refer to *Calculating the Index Level* below.

Calculating the Index Level

From and including the Index Commencement Date, the UBS Risk Adjusted Dynamic Alpha (RADA) Index Level will be determined by the Index Administrator at the Valuation Time on each Index Business Day in accordance with the following applicable formula depending on the value of DERI published under Refinitiv Code "ULTADERI=UBSL" at the Valuation Time on the relevant Business Day as set out below (each of Long, Short and Flat [in each case as defined below] a "Position").

Value of DERI one (1) Business Day prior to Business Day *t*:	Position
Less than or Equal to -0.75	Flat
Greater than -0.75 AND less than or equal to 1.25	Long
Less than or Equal to -0.75	Flat
Greater than -0.75 AND less than or equal to 1.25	Short
Less than or Equal to -0.75	Flat

Long Position

If one (1) Business Day prior to Business Day *t*, the published value of DERI is lower than or equal to 1.25 and greater than -0.75 ("Long"), then the Index shall track the Index Component *k* at the close of business on Index Business Day *t*:

$$Strategy_{t+1}^{k,c,v} = Strategy_t^{k,c,v} \times \begin{bmatrix} 1 + \left(\dfrac{UI_{t+1,k}}{UI_{t,k}} - 1 - Cov_{k,c} \times Day(t)/360 \right) \\ -\left(Rate - v \times Rate_{t,c} \right) \times Day(t)/360 \\ -f \times Day(t)/360 \end{bmatrix}$$

Short Position

If one (1) Business Day prior to Business Day *t*, the published value of DERI is less than or equal to -1.25; and greater than -2 ("Short"), then the Index shall track the Index Component *k* at the close of business on Index Business Day *t*:

$$Strategy_{t+1}^{k,c,v} = Strategy_t^{k,c,v} \times \begin{bmatrix} 1 + \left(1 - \dfrac{UI_{t+1,k}}{UI_{t,k}} + Cov_{k,c} \times Day(t)/360 \right) \\ +\left(Rate_{t,k} + v \times Rate_{t,c} \right) \times Day(t)/360 \\ -f \times Day(t)/360 \end{bmatrix}$$

Flat Position

If one (1) Business Day prior to Index Business Day *t*, the published value of DERI is greater than 1.25, less than or equal to -0.75 and greater than -1.25, or less than or equal to -2 ("Flat"), the Index shall invest in cash at the close of *t*:

$$Strategy_{t+1}^{k,c,v} = Strategy_t^{k,c,v} \times \left[1 + v \times Rate_{t,c} \times Day(t)/360 - f \times Day(t)/360 \right]$$

where:

$Strategy_t^{k,c,v}$	means 100, if *t* is the Index Base Date, otherwise $Strategy_t^{k,c,v}$ is the value of the Index on Index Component *k* on Index Business Day *t*.
c	means the Index Currency of the related Index.
v	represents whether the Index is a total return or an excess return index. 1 means total return and 0 means excess return.
$UI_{t,k}$	means the closing level of Index Component *k* on Index Business Day *t*.
$UI_{t+1,k}$	means the closing level of Index Component *k* on Index Business Day *t*+1.
f	means 1.00% which represents the Index Fee.
$Rate_{t,k}$	means the Euro Short-Term Rate (ESTR) or Secured Overnight Financing Rate (SOFR) fixing of currency of Index Component *k* (as defined in Table 2 in *Other Components of Indices*) on Index Business Day *t*.
$Rate_{t,c}$	means the Euro Short-Term Rate (ESTR) or Secured Overnight Financing Rate (SOFR) fixing of currency *c* (as defined in Table 2 in *Other Components of Indices*) on Index Business Day *t* minus 10 basis points.
$Day(t)$	means the number of calendar days from and including Index Business Day *t* to but excluding Index Business Day *t*+1.
$Cov_{k,c}$	means the quanto cost for converting the performance of the Index Component from its local currency to the Index Currency.

Benchmark Determination

For determination of benchmarks, please refer to *Calculating the Index Level* above.

Index History

As limited historical performance data exist with respect to each Index, any notional investment in the Index may involve greater risk than a notional investment in indices or strategies with a proven track record. Each Index will be first calculated on or around the Index Commencement Date and, therefore, lacks historical performance. All such retrospective closing levels are simulated based on quantitative screening only. They must be considered hypothetical and illustrative only.

The actual performance of an Index may be materially different from the results presented in any simulated history relating to the Index. Past performance should not be considered indicative of future performance.

Rounding of Calculated Values

Each Index Level published by the Index Administrator shall be rounded to two decimal places. All other determinations shall not be rounded.

Calendar

The Index Level will be calculated on all "Index Business Days" ("Trading Days" - days where the Exchanges are scheduled to be open for trading during their regular trading sessions), and subsequently published on the following weekday.

Index Governance and Regulatory Compliance

IHS Markit Benchmark Administration Limited (IMBA UK) is the Administrator of the UBS Risk Adjusted Dynamic Alpha (RADA) Index.

Information on IMBA UK's governance and compliance approach can be found [here](#). This document covers the following topics:

- Governance arrangements, including external committees
- Input data integrity
- Conflicts of interest management
- Market disruption and Force Majeure
- Methodology changes and cessations
- Complaints
- Errors and restatements
- Reporting of infringements and misconduct
- Methodology reviews
- Business continuity

More details about IMBA UK can be found on the Administrator's website: [Benchmark Administration by IMBA UK | IHS Markit](#).

Risk Factor

IMBA UK solely operates as Index Administrator; as such, IMBA UK does not act as an investment adviser nor provides advice of any nature and therefore does not assume any fiduciary obligation to any investors buying, selling, entering into, or holding products linked to the Index.

For any further information about risk factors, please refer to the Index Owner website: http://www.ubs.com/index-risk-factors.

Construction of the Index Guide

The Index Guide is published by the Index Administrator. In the event of any inconsistency between the English-language version of this Index Guide and that translated into any other language, this English version shall prevail.

Definitions

Bloomberg Page Refers to Table 1 in *Index Overview*.

Business Day means any day on which DERI is calculated and published by IHS Markit Benchmark Administration Limited (IMBA UK).

Disrupted Day is determined by the Index Administrator as a day that affects the Index, any or all of the Index Components, or the methodology in respect of the Index -- as a result of an Index Market Disruption Event or a Force Majeure Event that occurs on one or more Scheduled Trading Days (each, a "Disrupted Day").

Exchanges means, in respect of each Index Component, the exchanges or quotation systems on which trading of such Index Component, or futures, or option contracts linked to such Index Component principally occurs, as determined by the Index Administrator.

Index refers to the UBS Risk Adjusted Dynamic Alpha (RADA) Index.

Index Administrator means IHS Markit Benchmark Administration Limited (IMBA UK).

Index Base Date is the date of the initial level of the index ("Index Base Level") – outlined in Table 1 of *Index Overview*.

Insert Base Level is the initial level of the index – outlined in Table 1 of *Index Overview*.

Index Business Day means any day (other than a Saturday or Sunday) that is (i) a Scheduled Trading Day for the relevant Index Components and (ii) not a Disrupted Day.

Index Commencement Date is the date the index level was first published – outlined in *Significant Index Administration Events*.

Index Component (and together, **Index Components**) means each Underlying Index and the Underlying Cash Position that comprises the Index, as amended, replaced, or substituted from time to time.

Index Currency in respect of an index, means the currency in which that index is denominated as indicated in Table 1 of *Index Overview* .

Index Level means level of the Index determined in accordance with *Index Calculation* at the Valuation Time on each Index Business Day *t*.

Index Guide means this document, as amended, replaced, or substituted, from time to time.

Index Owner means UBS AG, London Branch, a division of UBS AG (or any successor thereto).

Rebalancing Date means the date that the index undergoes rebalancing – please refer to *Index Calculation*.

Refinitiv Page	refers to pages: "ULTARADA=UBSL; ULTARASP=UBSL; ULTARASE=UBSL; and ULTARADX=UBSL" on Refinitiv.
Scheduled Trading Day	means, in respect of each Index Component, a day on which the Exchanges are scheduled to be open for trading during their regular trading sessions.
Underlying Index	Please refer to the *Underlying Indices* section of this document's *Index Selection Rules* chapter.
Valuation Time	means in respect of the Index on an Index Business Day, the scheduled weekday closing time for a Scheduled Trading Day on that Index Business Day, or such other time on that Index Business Day as the Index Calculation Agent may determine.

Further Information

Formal Complaints

Formal complaints should be e-mailed to *spdji_compliance@spglobal.com*.

Please note: *spdji_compliance@spglobal.com* should only be used to log formal complaints.

General Index Inquiries

For general index inquiries, please contact *indices@ihsmarkit.com*.

Appendix

Index	Bloomberg Page	Refinitiv Page	Index Base Date	Termination Date
UBS RADA Europe Index - Net Total Return	MLTARADS Index	ULTARADS=UBSL	1 January 1997	31 May 2021
UBS RADA Europe Index - Excess Return	MLTARAUX Index	ULTARAUX=UBSL	1 January 1997	31 May 2021
UBS RADA U.S. Index - Net Total Return	MLTARASE Index	ULTARASE=UBSL	1 January 1997	31 May 2021
UBS RADA U.S. Index - Excess Return	MLTARASX Index	ULTARASX=UBSL	1 January 1997	31 May 2021

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