

# S&P Dow Jones Indices

A Division of **S&P Global**

## UBS Long/Shortable CDX/iTraxx Excess Return (ER) Index Guide



September 2022

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# Significant Index Administration Events

## UBS Long/Shortable CDX/iTraxx Excess Return (ER) Index

**Table 1**

<b>Date</b>	<b>Index Administration Event</b>
September 2017	IHS Markit Benchmark Administration Limited (IMBA UK) officially commences Index Administration
September 2017	IMBA UK Oversight Committee begins oversight of the Index
25 September 2017	Index Commencement Date
02 March 2020	Change to input data snap time for 5Y indices
10 September 2020	IMBA UK officially commences Index Administration of the UISYME5E & UISYME5S indices
03 November 2020	Change in Index Business Day definition
14 June 2022	Change to Index Business Day definition for iTraxx indices

# Index Overview

This document outlines the fundamental concept and technical methodology underlying the following UBS Indices:

**Table 2**

UBS Credit Beta Index	Bloomberg Ticker	Refinitiv Reuters Instrument Code (RIC)
UBS Long CDX EM 5Y Index ER USD	UISYME5E	.UISYME5E
UBS Shortable CDX EM 5Y Index ER USD	UISYME5S	.UISYME5S
UBS Long CDX IG 5Y Index ER USD	UISYMI5E	.UISYMI5E
UBS Shortable CDX IG 5Y Index ER USD	UISYMI5S	.UISYMI5S
UBS Long CDX IG 10Y Index ER USD	UISYMI1E	.UISYMI1E
UBS Shortable CDX IG 10Y Index ER USD	UISYMI1S	.UISYMI1S
UBS Long CDX HY 5Y Index ER USD	UISYMH5E	.UISYMH5E
UBS Shortable CDX HY 5Y Index ER USD	UISYMH5S	.UISYMH5S
UBS Long iTraxx Main 5Y Index ER EUR	UISYMM5E	.UISYMM5E
UBS Shortable iTraxx Main 5Y Index ER EUR	UISYMM5S	.UISYMM5S
UBS Long iTraxx Main 10Y Index ER EUR	UISYMM1E	.UISYMM1E
UBS Shortable iTraxx Main 10Y Index ER EUR	UISYMM1S	.UISYMM1S
UBS Long iTraxx XO 5Y Index ER EUR	UISYMX5E	.UISYMX5E
UBS Shortable iTraxx XO 5Y Index ER EUR	UISYMX5S	.UISYMX5S

## Index Base Data

**Table 3**

UBS Credit Beta Index <sup>1</sup>	Index Base Date	Base Value	Index Commencement Date	Tenor	Initial Series	Publishing Rounding (dp)	Base/ Derived Index
UBS Long CDX EM 5Y Index Excess Return USD	20 March 2007	100	10 September 2020	5	7	4	Base
UBS Shortable CDX EM 5Y Index Excess Return USD	20 March 2007	100	10 September 2020	5	7	4	Base
UBS Long CDX IG 5Y Index Excess Return USD	20 March 2007	100	25 September 2017	5	8	4	Base
UBS Shortable CDX IG 5Y Index Excess Return USD	20 March 2007	100	25 September 2017	5	8	4	Base
UBS Long CDX IG 10Y Index Excess Return USD	20 March 2007	100	25 September 2017	10	8	4	Base
UBS Shortable CDX IG 10Y Index Excess Return USD	20 March 2007	100	25 September 2017	10	8	4	Base
UBS Long CDX HY 5Y Index Excess Return USD	20 March 2007	100	25 September 2017	5	8	4	Base
UBS Shortable CDX HY 5Y Index Excess Return USD	20 March 2007	100	25 September 2017	5	8	4	Base
UBS Long iTraxx Main 5Y Index Excess Return EUR	20 March 2007	100	25 September 2017	5	7	4	Base
UBS Shortable iTraxx Main 5Y Index Excess Return EUR	20 March 2007	100	25 September 2017	5	7	4	Base
UBS Long iTraxx Main 10Y Index Excess Return EUR	20 March 2007	100	25 September 2017	10	7	4	Base
UBS Shortable iTraxx Main 10Y Index Excess Return EUR	20 March 2007	100	25 September-2017	10	7	4	Base
UBS Long iTraxx XO 5Y Index Excess Return EUR	20 March 2007	100	25 September-2017	5	7	4	Base
UBS Shortable iTraxx XO 5Y Index Excess Return EUR	20 March 2007	100	25 September-2017	5	7	4	Base

<sup>1</sup> EM = Emerging Markets; HY = High Yield; IG = Investment Grade; XO = Crossover

## Objective of the Index Family

A Credit Default Swap (CDS) Index is a family of lists of Reference Entities, with a list compiled approximately every 6 months to reflect recent changes in, amongst other factors, the underlying Reference Entities' liquidity, market perceived riskiness and credit rating, in accordance with a set of rules. Each of these periodic updates is referred to as a "Series," the details of which are published in a document known as an "Index Annex." Each Series in respect of a given CDS Index is numbered.

Each Reference Entity may be subject to the occurrence of a Credit Event, pursuant to which a Loss Amount is calculated, and the Reference Entity is removed from each Series of CDS Index in which it occurs. This will result in the republication of the Index Annex for the affected Series under a new "Version" (known as a "Reversion Event"). Each Version in respect of a given Series of a CDS Index is numbered.

The Reference Entities listed in the Index Annex for a specified Version of a Series of a CDS Index are known as the "Constituents."

CDS Index transactions have a maturity date known as the Scheduled Maturity Date. CDS Indices identified as "5Y" will have a Scheduled Maturity Date on the Fixed Rate Payer Payment Date falling 5 years after the first Fixed Rate Payer Payment Date after the relevant Series Date in respect of the relevant Series. Similarly, "10Y" implies a 10 year Scheduled Maturity Date offset. The "Series Date" is the later of the Annex Date, and the date published in each Index Annex under "Roll Date" in respect of ITraxx indices, or "Effective Date" in respect of CDX indices, in all cases by referring to the Version 1 Index Annex.

Each UBS Credit Beta Index reflects the performance of selling protection on the prevailing Series on a notional amount of the associated CDS Index (as outlined in Table 4 of *Index Components*) and periodically adjusted to the newest Series (known as the "On-The-Run" Series) of the associated CDS Index, as described more fully herein.

The family is comprised of the following:

- **UBS Credit Beta Long Excess Return Indices:** which replicate the risk of selling protection on the underlying Constituents.
- **UBS Credit Beta Shortable Excess Return Indices:** which, when shorted, replicate the risk of buying protection on the underlying Constituents.

## Index Outline

Each UBS Credit Beta Index is initially constructed by reference to a notional amount of protection sold on a specific Series of the associated CDS Index. The Series specified on the relevant Index Base Date is set out in Table 3 in respect of each UBS Credit Beta Index. The Notional of the prevailing On-The-Run Series is calculated on the relevant Index Base Date then adjusted on each Index Rebalance Date pursuant to the rules set out below.

Changes to the Index Levels are driven by the prevailing value of a contract (the "Mark-To-Market") on the associated CDS Index, any associated Coupon Cash Amounts as well as any Credit Default Cash Amounts pursuant to occurrence of any Credit Events in respect of the Constituents in the associated CDS Index.

The Mark-To-Market of the associated CDS Index for each UBS Credit Beta Index is observed on each Index Business Day. The Mark-To-Market may be positive or negative on any Index Business Day. In a standard CDS transaction, a Protection Seller pays the Upfront Amount when the Markit Index Mid-Spread is lower than the relevant index Coupon to account for the difference in index market value and actual cash flows. Conversely, a Protection Seller receives the Upfront Amount when the Markit Index Mid-Spread is higher than the index Coupon. Upfront Amounts are adjusted for accrued but unpaid Fixed Amounts. Such amounts are reflected in the corresponding UBS Credit Beta Index on an Index Rebalance Date (as specified below) by a reduction/increase in the associated Cash Balance as applicable. The changes to the

Cash Amount in respect of each UBS Credit Beta Indices occur on the relevant "Index Rebalance Date" which is each of the following:

- **Coupon Rebalance Date** – occurs on each Coupon Payment Date in respect of the CDS Index associated with the relevant UBS Credit Beta Index. Coupon Payment Dates are scheduled to be on 20 March, 20 June, 20 September, and 20 December in each year however will be adjusted in each case to be the following Index Business Day should such Coupon Payment Date fall on a day which is not an Index Business Day,
- **Roll Rebalance Date** –The ten consecutive Index Business Days starting on the third Index Business Day following each Series Date.

Series Dates are expected to be, in respect of each underlying CDS Index family, as follows:

- iTraxx Europe: 20 March and 20 September in each year
- iTraxx Crossover: 20 March and 20 September in each year
- CDX.NA.IG: 20 March and 20 September in each year

and

- CDX.NA.HY: 27 March and 27 September in each year
- CDX.EM: 20 March and 20 September in each year

**Valuation of the Index Level.** In respect of each Index Business Day, the valuation of the Index Level is performed by reference to the Mark-To-Market of the associated CDS Index, which itself is determined by reference to the Markit Index Mid-Price calculated at the specified IMBA UK Fixing Time as per Table 4. On Index Rebalance Dates, an additional Transaction Cost is applied as described in more detail in the *Transaction Costs* section of this document.

**Credit Events and Reference Entities.** Following the occurrence of a Credit Event in respect of a Reference Entity, any related UBS Credit Beta Indices will be updated to a new Version of the CDS Index Series.

**New Version of CDS Index Series.** The new Version of the CDS Index Series will not contain the Reference Entity for which a Credit Event has been determined. The new Version will be published on the Index Business Day following the Auction Final Price Determination Date or the Event Determination Date (if the relevant Credit Event is a Modified (Modified) Restructuring —M(M)R—restructuring event in respect of the affected Reference Entity).

**Derived Price.** The Cash Balance associated with the relevant UBS Credit Beta Index will be reduced by an amount analogous to the amount a Protection Seller would need to pay; this is determined using the Derived Price which is calculated by reference to the Auction Final Price, or the Markit Recovery Rate if the relevant Credit Event is an M(M)R Restructuring. Following such an event, the Index Level is likely to fall.

# Index Components

## Spread/Price Fixing Time

**Table 4**

UBS Beta Credit Index	CDS Index	Fixing Time <sup>2,3</sup>
UBS Long CDX EM 5Y Index Excess Return USD	CDX.EM 5Y	LN1430
UBS Shortable CDX EM 5Y Index Excess Return USD	CDX.EM 5Y	LN1430
UBS Long CDX IG 5Y Index Excess Return USD	CDX.NA.IG 5Y	LN1430
UBS Shortable CDX IG 5Y Index Excess Return USD	CDX.NA.IG 5Y	LN1430
UBS Long CDX IG 10Y Index Excess Return USD	CDX.NA.IG 10Y	NY1700
UBS Shortable CDX IG 10Y Index Excess Return USD	CDX.NA.IG 10Y	NY1700
UBS Long CDX HY 5Y Index Excess Return USD	CDX.NA.HY 5Y	LN1430
UBS Shortable CDX HY 5Y Index Excess Return USD	CDX.NA.HY 5Y	LN1430
UBS Long iTraxx Main 5Y Index Excess Return EUR	iTraxx Europe Main 5Y	LN1430
UBS Shortable iTraxx Main 5Y Index Excess Return EUR	iTraxx Europe Main 5Y	LN1430
UBS Long iTraxx Main 10Y Index Excess Return EUR	iTraxx Europe Main 10Y	LN1700
UBS Shortable iTraxx Main 10Y Index Excess Return EUR	iTraxx Europe Main 10Y	LN1700
UBS Long iTraxx XO 5Y Index Excess Return EUR	iTraxx Europe Crossover 5Y	LN1430
UBS Shortable iTraxx XO 5Y Index Excess Return EUR	iTraxx Europe Crossover 5Y	LN1430

<sup>2</sup> NY means New York time; LN means London time.

<sup>3</sup> Effective 02 Mar 2020; 5Y index fixing times changed to LN1430 which are not inclusive of CCP contribution data, prior to this, NY/LN1700 fixing times were observed inclusive of CCP contribution data.



# Index Calculation

## Initial Index Level

$$Index\ Level(t = 0) = 100$$

Here and throughout the document,  $t=0$  indexation means  $t=$ Index Base Date.

Index Base Date is set out in Table 3, for the avoidance of doubt all UBS Credit Beta Indices, except those for which the associated Credit Default Swap Index is CDX.NA.HY,

$$IndexBaseDate = 20\ March\ 2007$$

For those which refer to a CDX.NA.HY index,

$$IndexBaseDate = 28\ March\ 2007$$

## Index Level

On any Index Business Day after the Index Base Date, in respect of a UBS Credit Beta Index, the Index Level is defined as follows:

$$Index\ Level(t) = 100 + Cash\ Balance(t) - MTM_{otr}(t) \times Notional_{otr}(t) - MTM_{otr'}(t) \times Notional_{otr'}(t)$$

## Mark-to-Market

The Mark-To-Market ("MTM") of a given Series and Version of a Credit Default Swap Index on any Index Business Day  $t$  is calculated by IMBA UK using the Markit Index Mid-Price.

The calculation of the Markit Index Mid-Price is conducted by reference to a daily survey of CDS market participants. IMBA UK publishes a Price (converted from survey valuation metrics using the International Swaps and Derivatives Association (ISDA) CDS Standard Model as necessary).

The ISDA CDS Standard Model is available on the ISDA website: [ISDA CDS Standard Model \(cdsmodel.com\)](http://cdsmodel.com).

The respective MTM values for On-The-Run and Off-The-Run Series of a given Credit Default Swap Index are calculated as follows:

$$MTM_{otr}(t) = (1 - Price_{otr}(t) - Accrued_{otr}(t)) \times IndexFactor_{otr}(t)$$

$$MTM_{otr'}(t) = (1 - Price_{otr'}(t) - Accrued_{otr'}(t)) \times IndexFactor_{otr'}(t)$$

where:

$$Accrued_{otr}(t) = \frac{((Number\ of\ calendar\ days\ from\ and\ excluding\ AccrualStartDate(t)\ to\ and\ including\ t) + 1) \times Coupon_{otr}}{360}$$

$$Accrued_{otr'}(t) = \frac{((Number\ of\ calendar\ days\ from\ and\ excluding\ AccrualStartDate(t)\ to\ and\ including\ t) + 1) \times Coupon_{otr'}}{360}$$

where:

$AccrualStartDate(t)$  is the immediately preceding Coupon Payment Date, or, if none, 20 March 2007.

If  $t$  is a Coupon Payment Date, then  $AccrualStartDate(t) = t$

**Note:** In September 2008, due to market trading anomalies, the Roll Date for the iTraxx Index Family Series 10 occurred seven calendar days after the most recent Coupon Payment Date.

Accordingly,  $AccrualStartDate(t)$  should have been the Roll Date (for iTraxx Index Family). For simplicity in the index back-test calculation, it has been assumed that Roll Date occurred concurrently on 22 September 2008. The relevant Index Annexes can be accessed here:

iTraxx Europe Main & iTraxx Crossover

<http://www.markit.com/Company/Files/DownloadFiles?CMSID=10ede7f6aba94840bc7bba4931051e70>

### Notional On-the-Run

On any Index Business Day, "Notional On-The-Run" represents a reference notional amount of protection sold on the prevailing On-The-Run Series of the relevant CDS Index in the respect of the associated UBS Credit Beta Index. The Notional On-The-Run is determined on the Index Base Date and each Index Rebalance Date to reflect cashflows which have occurred pursuant to the relevant CDS Index transaction.

The Notional On-The-Run is calculated in the following manner under the respective scenarios:

- $t = 0$

On the Index Base Date, the Notional is determined by reference to the MTM of the On-The-Run Series of the applicable CDS Index, and the Index Base Level.

$$Notional_{otr}(t = 0) = \frac{IndexBaseLevel}{1 - MTM_{otr}(t = 0)}$$

- $t =$  Series Date only
- or
- $t =$  Series Date and Coupon Rebalance Date

On each Series Date, a new Series for a given Credit Default Swap Index is launched. The new Series is now known as the On-The-Run Series, and the On-The-Run Series as of the Index Business Day prior to the Series Date is now known as the Off-The-Run Series. The below definition also applies in cases where Series Date coincides with Coupon Rebalance Date:

$$Notional_{otr}(t) = 0$$

- $t =$  Coupon Rebalance Date only

On a Coupon Payment Date in the On-The-Run Series, the Notional On-The-Run will be adjusted primarily to reflect Fixed Amounts due to a Protection Seller on the On-The-Run Series, following which the Notional On-The-Run will be equal to the sum of the Index Level and the Cash Balance, net of Transaction Costs.

$$Notional_{otr}(t) = Notional_{otr}(t - 1) + \frac{(100 + CashBalance(t-1) + CashFlow(t) - Notional_{otr}(t-1))}{(1 - (MTM_{otr}(t) - CouponCost(t)))}$$

- $t =$  Roll Rebalance Date

The UBS Credit Beta Indices are designed to transfer risk from the Off-The-Run Series of the associated Credit Default Swap Index to the On-The-Run Series. This takes place over ten Index Business Days commencing three Index Business Days following the relevant Series Date.

$$Notional_{otr}(t) = \frac{(100 + CashBalance(t-1) + CashFlow(t) - NotionalChange_{otr'}(t) - Notional_{otr}(t-1))}{(1 - (MTM_{otr}(t) - RollCost_{otr}(t)))} + Notional_{otr}(t-1)$$

where:

$$\begin{aligned} NotionalChange_{otr'}(t) &= Notional_{otr'}(t-1) \times (MTM_{otr'}(t) + RollCost_{otr'}(t)) \\ &+ Notional_{otr'}(t) \times (1 - (MTM_{otr'}(t) + RollCost_{otr'}(t))) \end{aligned}$$

In all other cases, no change to the Notional On-The-Run takes place, it is set to be the same as determined for the previous Index Business Day accordingly:

$$Notional_{otr}(t) = Notional_{otr}(t-1)$$

### Notional Off-the-Run

On any Index Business Day, "Notional Off-The-Run" represents a reference amount of protection sold on the applicable Off-The-Run Series of the relevant CDS Index in respect of the associated UBS Credit Beta Index. On each Series Date, a new Series of the respective CDS Index is launched, which is known as the On-The-Run Series.

Accordingly, the On-The-Run Series from the Index Business Day immediately preceding the Series Date is known as the Off-The-Run Series once the Series Date in respect of the newer Series. This is described below as well as in the *Notional On-The-Run* section above.

The Notional Off-The-Run is calculated in the following manner under the respective scenarios:

- $t = 0$

On the Index Base Date, the Notional Off-The-Run will be zero.

$$Notional_{otr'}(t = 0) = 0$$

- $t = \text{Series Date only}$

$$Notional_{otr'}(t = \text{Series Date only}) = Notional_{otr}(t-1)$$

- $t = \text{Coupon Rebalancing Date}$

On a Coupon Payment Date in the Off-The-Run Series, the Notional Off-The-Run will be adjusted to reflect Fixed Amounts receivable by a seller of protection on the Off-The-Run Series (This is only applicable in cases where the Coupon Payment Date falls on days the Notional On-The-Run is zero).

$$Notional_{otr'}(t) = \begin{cases} Notional_{otr}(t-1) + \frac{(100 + CashBalance(t-1) + CashFlow(t) - Notional_{otr}(t-1))}{(1 - (MTM_{otr'}(t) - CouponCost(t)))}, & t = \text{series date and coupon rebalancing date} \\ Notional_{otr'}(t-1) + \frac{(100 + CashBalance(t-1) + CashFlow(t) - Notional_{otr'}(t-1))}{(1 - (MTM_{otr'}(t) - CouponCost(t)))}, & t = \text{coupon rebalancing date only} \end{cases}$$

if:

$$Notional_{otr}(t) = 0$$

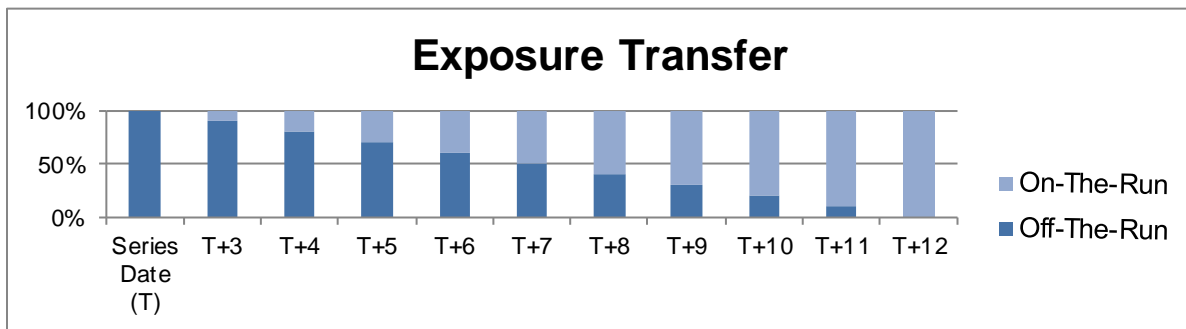
- $t =$  Roll Rebalancing Date

The UBS Credit Beta Indices are designed to transfer risk from the Off-The-Run Series of the associated Credit Default Swap Index to the On-The-Run Series. This takes place over ten Index Business Days commencing three Index Business Days following the relevant Series Date.

$$Notional_{otr'}(i) = \frac{Notional_{otr'}(i-1) * (10-i)}{10-i+1}$$

Where,  $i = \{1,2,3,4,5,6,7,8,9,10\}$  and each  $i$  being the Roll Rebalance Dates in respect of the Series Date of the associated On-The-Run Series.

The graph below shows exposure transfer between Off-The-Run Series to On-The-Run Series exposure. The graph is for illustrative purposes only; it is not likely that Notional On-The-Run on T+ 12 will be equal to Notional Off-The-Run on Series Date (T).



In all other cases, no change to the Notional Off-The-Run takes place, it is set to be the same as determined for the previous Index Business Day accordingly:

$$Notional_{otr'}(t) = Notional_{otr'}(t-1)$$

### Cash Balance

Each UBS Credit Beta Index has a reference Cash Balance which is designed to record Coupon Cash Amounts, Credit Default Cash, and Cash Derivative amounts, each as detailed below.

Cash Balance on any Index Business Day  $t$  is calculated as follows:

- $t = 0$

$$CashBalance(t = 0) = CashDerivative (t = 0)$$

- otherwise,

$$CashBalance(t) = CashBalance(t-1) + CashFlow (t) + CashDerivative (t)$$

### Cash Derivative

Cash Derivative computes amounts that would be received or paid in the reference Credit Default Swap Index transactions which occur on the relevant Index Base Date and each Index Rebalance Date, net of any

Transaction Costs as applicable. These amounts are then recorded in the Cash Balance as described above. The Cash Derivative is computed in the following manner under the respective scenarios:

- $t = 0$

$$\text{Cash Derivative}(t = 0) = \text{Notional}_{otr}(t = 0) \times \text{MTM}_{otr}(t = 0)$$

- $t = \text{Coupon Rebalance Date only}$

$$\text{Cash Derivative}(t) = (\text{Notional}_{otr}(t) - \text{Notional}_{otr}(t - 1)) \times (\text{MTM}_{otr}(t) - \text{CouponCost})$$

- $t = \text{Coupon Rebalance Date and Series Date}$

$$\text{Cash Derivative}(t) = (\text{Notional}_{otr}(t) - \text{Notional}_{otr}(t - 1)) \times (\text{MTM}_{otr}(t) - \text{CouponCost})$$

- $t = \text{Roll Rebalancing Date}$

$$\begin{aligned} \text{Cash Derivative}(t) &= (\text{Notional}_{otr'}(t) - \text{Notional}_{otr'}(t - 1)) \times (\text{MTM}_{otr'}(t) + \text{RollCost}_{otr'}(t)) \\ &+ (\text{Notional}_{otr}(t) - \text{Notional}_{otr}(t - 1)) \times (\text{MTM}_{otr}(t) - \text{RollCost}_{otr}(t)) \end{aligned}$$

- otherwise,

$$\text{Cash Derivative}(t) = 0$$

## Cash Flows

The net Cash Flow for any Index Business Day is given by the following:

$$\begin{aligned} \text{CashFlow}(t) &= \text{CouponCashAmount}_{otr}(t) + \text{CouponCashAmount}_{otr'}(t) + \text{CreditDefaultCash}_{otr}(t) \\ &+ \text{CreditDefaultCash}_{otr'}(t) \end{aligned}$$

Both the Coupon Cash Amount and the Credit Default Cash are determined as below.

### Coupon Cash Amount

Coupon Cash Amount reflects the Fixed Amounts that would be due to the Protection Seller of the relevant Credit Default Swap Index. On each Coupon Payment Date, the Notional On-The-Run in respect of the associated UBS Credit Beta Index is adjusted as described above.

The Coupon Cash Amount credited on each Coupon Payment Date is calculated on the Index Base Date as follows:

$$\text{CouponCashAmount}_{otr}(t = 0) = 0$$

$$\text{CouponCashAmount}_{otr'}(t = 0) = 0$$

And, on subsequent Index Business Days as follows:

$$\text{CouponCashAmount}_{otr}(t) = \begin{cases} \text{CouponPayment}_{otr}(t) \times \text{Notional}_{otr}(t - 1), & t = \text{Coupon Payment Date only} \\ 0, & t \neq \text{Coupon Payment Date} \end{cases}$$

and

$$CouponCashAmount_{otr'}(t) = \begin{cases} CouponPayment_{otr'}(t) \times Notional_{otr'}(t-1), & t = CouponPayment\ Date\ only \\ 0, & t \neq CouponPayment\ Date \\ CouponPayment_{otr'}(t) \times Notional_{otr'}(t-1), & t = Coupon\ Payment\ Date\ and\ Series\ Date \end{cases}$$

where:

$$CouponPayment_{otr}(t = Coupon\ Payment\ Date) = \sum_{i=Previous\ Coupon\ Payment\ Date}^t DailyCouponAccrual_{otr}(i)$$

and

$$CouponPayment_{otr'}(t = Coupon\ Payment\ Date) = \sum_{i=Previous\ Coupon\ Payment\ Date}^t DailyCouponAccrual_{otr'}(i)$$

$$DailyCouponAccrual_{otr}(t) = \frac{(Number\ of\ calendar\ days\ from\ and\ excluding\ (t-1)\ to\ and\ including\ t) \times Coupon_{otr}(t) \times IndexFactor_{otr}(t)}{360}$$

$$DailyCouponAccrual_{otr'}(t) = \frac{(Number\ of\ calendar\ days\ from\ and\ excluding\ (t-1)\ to\ and\ including\ t) \times Coupon_{otr'}(t) \times IndexFactor_{otr'}(t)}{360}$$

In the above, (t - 1) represents the prior Index Business Day to t.

### Credit Default Cash

Under a standard CDS Index transaction, a pay-out occurs from the Protection Seller to the Protection Buyer. The UBS Credit Beta Indices reflect the position of selling protection, accordingly any loss pursuant to a Credit Event is included. Following the occurrence of a Credit Event in respect of a Constituent, a new Version of the relevant Index Annex will be published (a "Reversion Event"), which assigns zero to the Weighting of the affected Reference Entity in the Index Annex. The quoted Price published by Markit for the affected CDS Index is refactored to account for such change to the Weightings in the relevant Index Annex.

For example, assume there are 100 Constituents in the Index Annex for a specific Series of a CDS Index. If one Reference Entity experiences a Credit Event, the new Version of the Index Annex will reference 99 Reference Entities with weights of 1%, hence a transaction referencing USD 10 million of protection sold prior to the Reversion Event will reference USD 9.9 million following such Reversion Event.

A Reversion Event in respect of a Series of a Credit Default Swap Index will occur on the Business Day following the Auction Final Price Determination Date, or the Event Determination Date.

In case of a Credit Event in the *otr* or *otr'* series, the Loss Amount is calculated based on the Auction Final Price (providing the ISDA Determinations Committee has determined that an Auction should be held) of the entity impacted by the Credit Event. Loss Amount is computed here for informational purposes only and does not directly feed into the Index Level calculation.

$$Loss\ Amount(t) = \begin{cases} Notional_{otr}(t-1) \times (IndexFactor_{otr}(t-1) - IndexFactor_{otr}(t)) \times (AFP - 1), & \text{if } t = otr\ Reversion\ Event \\ Notional_{otr'}(t-1) \times (IndexFactor_{otr'}(t-1) - IndexFactor_{otr'}(t)) \times (AFP - 1), & \text{if } t = otr'\ Reversion\ Event \end{cases}$$

For the calculation of the Index Level, IMBA UK publishes a Price excluding the affected Reference Entity, and a second price, referred to as the "Derived Price" in respect of a Series which has experienced a Reversion Event. The Derived Price is defined as follows:

$$\begin{aligned} \text{DerivedPrice}_{otr}(t) &= (\text{Price}_{otr}(t) \times \text{IndexFactor}_{otr}(t) + \text{AFP} \times \text{Weighting of affected Reference Entity}) \\ &\quad / \text{IndexFactor}_{otr}(t-1) \end{aligned}$$

$$\begin{aligned} \text{DerivedPrice}_{otr'}(t) &= (\text{Price}_{otr'}(t) \times \text{IndexFactor}_{otr'}(t) + \text{AFP} \times \text{Weighting of affected Reference Entity}) \\ &\quad / \text{IndexFactor}_{otr'}(t-1) \end{aligned}$$

Therefore, Credit Default Cash can be expressed, and will be calculated for the purpose of the Index Level, as follows:

$$\text{CreditDefaultCash}_{otr}(t) =$$

$$\begin{cases} \text{Notional}_{otr}(t-1) \times ((1 - \text{Price}_{otr}(t)) \times \text{IndexFactor}_{otr}(t) - (1 - \text{DerivedPrice}_{otr}(t)) \times \text{IndexFactor}_{otr}(t-1)), & \text{if } t = \text{otr Reversion Event} \\ 0, & \text{otherwise} \end{cases}$$

$$\text{CreditDefaultCash}_{otr'}(t) =$$

$$\begin{cases} \text{Notional}_{otr'}(t-1) \times ((1 - \text{Price}_{otr'}(t)) \times \text{IndexFactor}_{otr'}(t) - (1 - \text{DerivedPrice}_{otr'}(t)) \times \text{IndexFactor}_{otr'}(t-1)), & \text{if } t = \text{otr' Reversion Event} \\ 0, & \text{otherwise} \end{cases}$$

If the relevant Credit Event is a M(M)R Restructuring the associated Reversion Event will occur on the Index Business Day following the announcement by the ISDA Determinations Committee that a M(M)R Restructuring Credit Event has occurred. As there will be no Auction, no Auction Final Price will be published accordingly the Markit Consensus Recovery Amount shall be used in Markit's determination of Derived Price in place of the Auction Final Price.

## Transaction Costs

To reflect liquidity of CDS Indices, Transaction Costs are included in the calculation of each UBS Credit Beta Index in accordance with the formulae below and are applied at each Roll Rebalance Date in line with the terms of each formula. Transaction Costs consist of "Roll Costs" and "Coupon Costs" are described below.

Rolls Costs are calculated using the Markit Index Mid-Spread of the current underlying CDS Series:

$$\begin{aligned} \text{RollCost}_{otr}(t) &= \begin{cases} (\text{RollCostPercentage}) * \text{Max}(\text{RollFactorFloor}, \text{spread}_{otr}(t)), & \text{Long indices} \\ -(\text{RollCostPercentage}) * \text{Max}(\text{RollFactorFloor}, \text{spread}_{otr}(t)), & \text{Shortable indices} \end{cases} \end{aligned}$$

$$\begin{aligned} \text{RollCost}_{otr'}(t) &= \begin{cases} (\text{RollCostPercentage}) * \text{Max}(\text{RollFactorFloor}, \text{spread}_{otr'}(t)), & \text{Long indices} \\ -(\text{RollCostPercentage}) * \text{Max}(\text{RollFactorFloor}, \text{spread}_{otr'}(t)), & \text{Shortable indices} \end{cases} \end{aligned}$$

Coupon Costs are subtracted as a flat percentage from the MTM on each Coupon Rebalance Date in line with the terms of the formulae.

$$\text{CouponCost} = \begin{cases} \text{CouponCostPercentage}, & \text{Long indices} \\ -\text{CouponCostPercentage}, & \text{Shortable indices} \end{cases}$$

The following are the cost parameters:

Index	Roll Cost Percentage	Roll Factor Floor	Coupon Cost Percentage
UBS Long/Shortable CDX EM 5Y Index ER USD	4.00%	2.50%	0.50%
UBS Long/Shortable CDX IG 5Y Index ER USD	2.50%	1.00%	0.15%
UBS Long/Shortable CDX IG 10Y Index ER USD	5.00%	1.00%	0.3%
UBS Long/Shortable CDX HY 5Y Index ER USD	2.00%	5.00%	0.50%
UBS Long/Shortable iTraxx Main 5Y Index ER EUR	2.50%	1.00%	0.15%
UBS Long/Shortable iTraxx Main 10Y Index ER EUR	5.00%	1.00%	0.3%
UBS Long/Shortable iTraxx XO 5Y Index ER EUR	2.00%	5.00%	0.50%
UBS Long/Shortable CDX EM 5Y Index ER USD	4.00%	2.50%	0.50%

### UBS Credit Beta Index History

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

Simulated back history for the UBS Credit Beta Indices has been calculated since March 2007 with live index calculation commencing on 25 September 2017.

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

### Rounding of UBS Credit Beta Indices

Each UBS Credit Beta Index Level published by the Index Administrator shall be rounded to four decimal places. All other determinations shall not be rounded.

### Calendar

The Index Level will be calculated on all Index Business Days and published by IMBA UK on  $t+1$  basis.

**Index Business Day.** In respect of the UBS Credit Beta Indices which have an associated Credit Default Swap Index belonging to the iTraxx family, the Index Business Days shall be days on which both of the following conditions are true:

- a) commercial banks and foreign exchange markets are open to settle payments in London
- and
- b) the TARGET2 (Trans-European Automated Real-time Gross Settlement Express Transfer system) is open.

In respect of the UBS Credit Beta Indices that have an associated CDS Index belonging to the CDX family, the Index Business Days shall be days on which both the UK and U.S. are not deemed holidays as per the holiday definitions recommended by the Securities Industry and Financial Markets Association (SIFMA).



# Index Governance and Regulatory Compliance

IHS Markit Benchmark Administration Limited (IMBA UK) is the Administrator of the UBS Long/Shortable CDX/iTraxx ER 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 Factors

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's 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

<b>Auction Final Price</b>	has the meaning ascribed to it in <i>ISDA Definitions</i> --later in the document's current chapter.
<b>Auction Final Price Determination Date</b>	has the meaning ascribed to it in <i>ISDA Definitions</i> .
<b>Cash Balance</b>	means the cash component of each Index as outlined in the <i>Cash Balance</i> section of this document
<b>CDS</b>	means a credit derivative swap transaction between two parties, a protection buyer who makes periodic premium payments, and a protection seller, who receives these payments in exchange for covering any Loss Amounts in the case of a Credit Event on the specified Reference Entity.
<b>Constituents</b>	refer to the Reference Entities referenced by a specified Series of a Credit Default Swap Index.
<b>Coupon</b>	Since the release of ISDA's protocols for the standardization of the credit markets, the common coupon strikes are 100 basis points (bps) and 500bps. Coupons are published in each Index Annex published by IMBA UK under the term Fixed Rate, by reference to the associated Scheduled Termination Date if applicable. The operation of the Fixed Rate for a Credit Default Swap Index transaction is described in <i>ISDA Definitions</i> .
<b>Coupon Cash Amount</b>	Please refer to this document's <i>Coupon Cash Amount</i> section.
<b>Coupon Payment Date</b>	the date on which the Coupon Cash Amount for the underlying Credit Default Swap Index is due and occurs on 20 March, 20 June, 20 September, and 20 December in each year (or the following Index Business Day in case such day is not an Index Business Day). The Coupon Payment Date is analogous to the Fixed Rate Payer Payment Date.
<b>Coupon Rebalance Date</b>	Please refer to the <i>Index Outline</i> section of this document.
<b>Credit Auction</b>	resolves the Auction Final Price for a Reference Entity, is determined through an auction process, following the ISDA Determinations Committee having determined a Credit Event with an Auction is applicable. The Auction is Administered by Creditex and IMBA UK. Details can be found in a Credit Auction Primer published on the following website: <a href="http://www.creditfixings.com/CreditEventAuctions/fixings.jsp">http://www.creditfixings.com/CreditEventAuctions/fixings.jsp</a> .

<b>Credit Default Cash</b>	Please refer to this document's <i>Credit Default Cash</i> section.
<b>Credit Event</b>	has the meaning ascribed to it in <i>ISDA Definitions</i> .
<b>Credit Default Swap (CDS) Index</b>	means a market standard series of CDS contracts. Credit Default Swap Indices are published by IMBA UK, and transactions are confirmed using the ISDA Definitions and documents termed "Untranching Confirmation" and "Untranching Standard Terms Supplement." There is more information on the following pages: <a href="http://www.markit.com/Documentation/Product/iTraxx">http://www.markit.com/Documentation/Product/iTraxx</a> <a href="http://www.markit.com/Documentation/Product/CDX">http://www.markit.com/Documentation/Product/CDX</a> .
<b>Credit Default Swap Index Portfolio</b>	the collection of all Credit Default Swap Index contracts referenced by the relevant Index at a given point in time.
<b>Derived Price</b>	Please refer to the <i>Credit Default Cash</i> section of this document.
<b>Event Determination Date</b>	has the meaning ascribed to it in <i>ISDA Definitions</i> .
<b>Fixed Rate Payer Payment Date</b>	has the meaning ascribed to it in the <i>ISDA Definitions</i> .
<b>Index Administrator</b>	means HIS Markit Benchmark Administration Limited (IMBA UK), the party overseeing the index calculation and administration.
<b>Index Annex</b>	means, in respect of a Version and a Series of a Credit Default Swap Index, the list of Constituents published by Markit. Index Annexes are published on the following pages: <a href="http://www.markit.com/Documentation/Product/iTraxx">http://www.markit.com/Documentation/Product/iTraxx</a> <a href="http://www.markit.com/Documentation/Product/CDX">http://www.markit.com/Documentation/Product/CDX</a> .
<b>Index Base Date</b>	the date of the initial level of the index (Index Base Level) – outlined in Table 1 of <i>Significant Index Administration Events</i> .
<b>Index Base Level</b>	the initial level of the index – outlined in Table 3 of <i>Index Overview</i> .
<b>Index Business Day</b>	is defined in the <i>Calendar</i> section of this document.
<b>Index Commencement Date</b>	the date the index level was first published – outlined in <i>Significant Index Administration Events</i> .
<b>Index Component</b> (and together <b>Index Components</b> )	each underlying security that comprises the Index, as amended, replaced, or substituted from time to time.
<b>Index Factor</b>	the sum total of the Weightings of the Constituents in the specified Version of a Credit Default Swap Index Series by reference to the Index Annex.

<b>Index Level</b>	the level of the Index determined in accordance with the <i>Index Calculation</i> section of this document.
<b>Index Guide</b>	this document, as amended, replaced, or substituted, from time to time.
<b>Index Owner</b>	UBS AG, London Branch, a division of UBS AG (or any successor thereto).
<b>Index Rebalancing Date</b>	means any date that is a Coupon Rebalance Date or a Roll Rebalance Date.
<b>Index Roll Over Period</b>	the period of ten consecutive Index Business Days starting on the third Index Business Day after the Series Date.
<b>Index Spread</b>	in standard quotation, CDX IG, iTraxx Main and Crossover, SovX and MCDX indices are quoted on a spread basis. Converting the price to spread and vice versa can be achieved via the ISDA CDS Standard Model.
<b>ISDA</b>	the International Swaps and Derivatives Association is the global trade association representing participants in the privately negotiated derivatives industry, a business covering swaps and options across all asset classes (interest rate, currency, commodity and energy, credit, and equity). ISDA was chartered in 1985.
<b>ISDA Definitions</b>	means the 2014 Credit Derivatives Definitions published by ISDA, as amended, and updated from time to time.
<b>ISDA Determinations Committee</b>	also known as the ISDA Credit Determinations Committee, is responsible for making determinations in connection with CDS transactions.
<b>ISDA CDS Standard Model</b>	lays down guidelines to follow a standard method of calculation using agreed input parameters to improve consistency and reduce operational differences. The model enhances transparency by optimizing the use of standard technology to translate upfront quotations to spread quotations and vice versa. The framework is published on <a href="http://www.cdsmodel.com/">http://www.cdsmodel.com/</a> .
<b>Loss Amount</b>	mean the Auction Settlement Amount, or the Cash Settlement Amount, as the case may be, each as set out in the ISDA Definitions.
<b>Mark-To-Market (MTM)</b>	Please refer to the <i>Mark-to-Market</i> section of this document.
<b>Markit or IHS Markit</b>	global leader in information data, analytics and solutions, in relation to the UBS Credit Beta Indices outlined in this document Markit is the Index Administrator.
<b>Markit CDX</b>	North American and Emerging Markets CDS indices owned by Markit.

<b>Markit Fixing</b>	the time snap used to obtain the relevant Markit-Mid-Index Spread / Markit-Mid-Index-Price from the Markit Pricing Service.
<b>Markit iTraxx</b>	European and Asian CDS indices owned by Markit.
<b>Markit-Mid-Index Spread</b>	the consolidated bid-ask index spread as published by the Markit Pricing Service
<b>Markit-Mid-Index Price</b>	the consolidated bid-ask index price as published by the Markit Pricing Service
<b>Markit Pricing Service</b>	provides relevant prices/spreads of the underlying Credit Default Swap Indices of the UBS Credit Beta Indices. Further information can be requested at <a href="mailto:cdssupport@ihsmarkit.com">cdssupport@ihsmarkit.com</a>
<b>Markit Recovery Rate</b>	the relevant Credit Default Swap Index recovery rate as provided by the Markit Pricing Service
<b>M(M)R Restructuring</b>	has the meaning ascribed to it in <i>ISDA Definitions</i> .
<b>Notional</b>	means, as of any date and in respect of a Series of Credit Default Swap Index, the amount of protection which has been notionally sold in order to calculate the Index Level.
<b>Notional Adjustment</b>	Please refer to the <i>Notional On-the-Run</i> section of this document.
<b>Off-The-Run</b>	means, in respect of a Credit Default Swap Index, the Series for which the Series Date has most recently occurred which is not the On-The-Run Series.
<b>On-The-Run</b>	means, in respect of a Credit Default Swap Index, the Series for which the Series Date has most recently occurred.
<b>Portfolio</b>	means, the collection of all Credit Default Swap Index contracts underlying the UBS Credit Beta indices invested in at a given point in time
<b>Price</b>	means, in respect of a Series of a Credit Default Swap Index, the Markit Index Mid-Price of such Series on a specific date, i.e., the official credit index price published by Markit in respect of the applicable fixing time on such date.
<b>Protection Buyer</b>	this is the party to a Credit Default Swap Index which pays a premium for protection in case a Credit Event occurs.
<b>Protection Seller</b>	this is the party to a Credit Default Swap Index receiving the Coupon Cash Amounts, and who is exposed to the credit risk of the Constituents.
<b>Rebalancing Date</b>	either a Coupon Payment Date or a Roll Rebalance Date.

<b>Reduced Credit Default Swap Index</b>	a Credit Default Swap Index that has experienced a Reversion Event due to a Credit Event having been triggered on an associated Constituent.
<b>Reference Entity</b>	means, in respect of an underlying the entity that is a Constituent in a Credit Default Swap Index. The Reference Entities in respect of a Version and Series of a Credit Default Swap Index are published by Markit in the related Index Annex.
<b>Reversion Event</b>	means, the publication of a new Version of and Index Annex in respect of a Series of a Credit Default Swap Index as the result one (or more) of the Constituents experiencing a Credit Event.
<b>Roll Rebalancing Date</b>	Please refer to this document's <i>Index Outline</i> section.
<b>Scheduled Maturity Date</b>	has the meaning ascribed to it in <i>ISDA Definitions</i> .
<b>Series</b>	means the periodically updated list of Reference Entities in respect of a Credit Default Swap Index. A new Series is published approximately every 6 months to reflect recent changes in, amongst other factors, the underlying Reference Entities' liquidity, market perceived riskiness and credit rating, in accordance with a set of rules.
<b>Series Date</b>	mean, in respect of a Series, the later of the Annex Date and the date published in the Index Annex under "Roll Date" in respect of ITraxx indices, or "Effective Date in respect of CDX indices, in all cases by referring to the Version 1 Index Annex.
<b>Transaction Costs</b>	Please refer to the <i>Rebalancing Costs</i> section of this document.
<b>UBS Credit Beta Indices</b>	refer to the indices listed in Table 3 of this document's <i>Index Overview</i> .
<b>Upfront Amount</b>	the initial (i.e., upfront) payment made or received when entering a Credit Default Swap Index transaction. Analogous to the Initial Payment Amount as set out in the ISDA Definitions.
<b>Version</b>	means the number by which each Series of a Credit is identified by a version number. After an index rolls, the initial Version will be one. To represent removal of Constituents due to credit events, a new version of the index is published. For example, the Markit CDX HY SERIES 26 v1 was the version of the Markit CDX HY index launched at the roll of March 2016. After the iHeartCommunications Credit Event, a new version, Markit CDX HY 26 v2, was published assigning zero Weighting to iHeartCommunications.



**Weighting**

means, in respect of a Constituent of a Version of a Credit Default Swap Index, the number specified as such against the Constituent in the relevant Index Annex.

# Annotations

$t$	refers to the current business day of calculation.
$otr$	refers to the On-The-Run credit index series
$otr'$	refers to the Off-The-Run credit index series
$Spread_{otr}(t)$	is the Markit Index Mid-Spread of the current On-The-Run credit series at date $t$ (i.e., the official credit index spread published by IMBA UK at the applicable fixing time on day $t$ ).
$Spread_{otr'}(t)$	is the Markit Index Mid-Spread of the current Off-The-Run credit series at date $t$ (i.e., the official credit index spread published by Markit at the applicable fixing time on day $t$ ).
$Price_{otr}(t)$	is the Markit Index Mid-Price of the current On-The-Run credit series at date $t$ (i.e., the official credit index price published by Markit in respect of the applicable fixing time on day $t$ ).
$Price_{otr'}(t)$	is the Markit Index Mid-Price of the current Off-The-Run credit series at date $t$ (i.e., the official credit index price published by Markit in respect of the applicable fixing time on day $t$ ).
$DerivedPrice_{otr}(t)$	is the Markit Index Mid-Price of the current On-The-Run credit series at date $t$ (i.e., the official credit index price published by Markit in respect of the applicable fixing time on day $t$ ) with reference to any applicable Loss Amounts, as set out in <i>Credit Default Cash</i> .
$DerivedPrice_{otr'}(t)$	is the Markit Index Mid-Price of the current Off-The-Run credit series at date $t$ (i.e., the official credit index price published by Markit in respect of the applicable fixing time on day $t$ ) with reference to any applicable Loss Amounts, as set out in <i>Credit Default Cash</i> .
$Coupon_{otr}(t)$	is the relevant Coupon of the on-the-run contract on day $t$ .
$Coupon_{otr'}(t)$	is the relevant Coupon of the off-the-run contract on day $t$ $Notional_{otr}(t)$ is the On-The-Run notional amount on which the protection is sold. OR represents the notional invested in the On-The-Run series as a result of selling protection.
$Notional_{otr'}(t)$	is the Off-The-Run notional amount on which protection is sold OR represents the notional invested in the Off-The-Run series as a result of selling protection.
$IndexFactor_{otr}(t)$	is the sum total of the Weightings of the Constituents in the On-The-Run index series.
$IndexFactor_{otr'}(t)$	is the sum total of the Weightings of the Constituents in the Off-The-Run index series.
$AFP$	refers to the Auction Final Price of the entity impacted by the Credit Event as determined at the credit event auction.

# Further Information

## **Formal Complaints**

Formal complaints should be e-mailed to [spdji\\_compliance@spglobal.com](mailto:spdji_compliance@spglobal.com).

Please note: [spdji\\_compliance@spglobal.com](mailto:spdji_compliance@spglobal.com) should only be used to log formal complaints.

## **General Index Inquiries**

For general index inquiries, please contact [indices@ihsmarkit.com](mailto:indices@ihsmarkit.com).

# Disclaimer, Licensing, and Trademark

## Disclaimer

No legal relationship (whether in contract, tort, or otherwise) exists between any Index Product Investor and the Index Administrator or the Index Owner and neither the Index Administrator nor the Index Owner owes any duties (whether in contract, tort, or otherwise) to any Index Product Investor. No claims, actions or legal proceedings may therefore be brought against the Index Administrator or the Index Owner in any manner whatsoever by an Index Product Investor or any other person. Neither the Index Administrator nor the Index Owner makes any representation, warranty or guarantee whatsoever, express, or implied, either as to the results to be obtained as to the use of the Index or the figures or levels at which the Index stands at any particular day or otherwise. In addition, neither the Index Administrator nor the Index Owner gives any assurance regarding any modification or change in any methodology used in calculating the Index and is under no obligation to continue the calculation, publication, and dissemination of the Index. Neither the Index Administrator nor the Index Owner warrants or represents or guarantees to any person the accuracy or completeness of the Index and its computation or any information related thereto and makes no warranty or representation or guarantee of any kind whatsoever relating to the Index is given or may be implied. The process and basis of computation and compilation of the Index and the related formulae, constituent benchmarks and factors may at any time be changed or altered by the Index Administrator. No responsibility or liability is accepted by either the Index Administrator or the Index Owner (whether for negligence or otherwise) in respect of the use of and/or reference to the Index by us or any other person in connection with securities, or for any inaccuracies, omissions, mistakes or errors in the computation of the Index (and neither the Index Administrator nor the Index Owner shall be obliged to advise any person or any Index Product Investor of any error therein) or for any economic or other loss which may be directly or indirectly sustained by any Index Product Investor or any other persons dealing with securities as a result. Any Index Product Investor or other person dealing with securities does so, therefore, in full knowledge of this disclaimer and can place no reliance whatsoever on the Index Administrator or the Index Owner. This document contains data derived as a result of back-testing of data and is provided by the Index Administrator or the Index Owner in good faith using its standard methodology for information of this kind. The methodology relies on proprietary models, empirical data, assumptions, and such other information that the Index Administrator or the Index Owner believes to be accurate and reasonable. Neither the Index Administrator nor the Index Owner makes, however, any representation, warranty or guarantee as to the accuracy, completeness, or appropriateness of such methodology and neither the Index Administrator nor the Index Owner accepts any liability for the use of such information. Specifically, there is no assurance that other banks or brokers would derive the same results for the back-test period. Nothing in the disclaimers in this section, *Disclaimer, Licensing, and Trademark*, shall exclude or limit liability to the extent such exclusion or limitation is not permitted by law or regulations to which the Index Administrator or the Index Owner is subject.

## Licensing and Trademark

The mark and name of the Index is proprietary to UBS. UBS Long/Shortable CDX/iTraxx Excess Return Index is the trademark of UBS AG and has been licensed for use by UBS AG, London Branch in connection with the calculation of the Index Level.

## Ownership

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