

S&P UBS USD Broad Leveraged Loan Index Methodology

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S&P UBS USD Broad Leveraged Loan Indices

The S&P UBS USD Broad Leveraged Loan Indices (LLI) represent the main sections of the US Dollar (USD) leveraged loan market. It is compiled, administered and managed by S&P DJI. Prices for the loans in the index are provided by S&P Global Market Intelligence's Evaluated Bond Pricing Service (EVB). This incorporates pricing submissions from over 40 market making institutions.

Reference loan data is provided by Wall Street Office (WSO) Data which represents up-to-date reference and transactional information on over 5,000 leveraged loans. WSO Data is accurately maintained in realtime by requiring an executed Credit Agreement for each loan, including subsequent amendments and receives over 7.5 million agent notices per year. This unparalleled access to loan information makes WSO Data the only accurate, up to date, comprehensive database for leveraged loan information.

The S&P UBS USD Broad Leveraged Loan Indices (LLI) are targeted at domestic and international investors.

All iBoxx indices are priced based on multiple data inputs. The S&P UBS USD Broad Leveraged Loan Indices use multi-source prices as described in the *iBoxx Pricing Methodology*, available at www.spglobal.com/spdji.

This document covers the index rules and calculation methodology.

Publication of the Index

The indices are calculated on the basis of end-of-day prices provided by EVB on each recommended Securities Industry and Financial Markets Association (SIFMA) US trading day.

On each pricing day, end-of-day bid, mid and ask price quotes for the loans in the universe are received from EVB. Prices for all loans are taken at 4:15pm EST.

Index data is published and distributed on the next day and is available on the S&P DJI website (www.spglobal.com/spdji) and third party data vendors. Please refer to the Data publication and access section for data vendor codes and index ISINs.

Selection criteria

The following five selection criteria are used to derive the index constituents from the USD denominated Loan universe:

- Loan type
- Minimum size
- Liquidity/Depth of market
- Credit Rating
- Minimum time to maturity

Loan types

The proposed list of eligible and ineligible loan types drawn below is to ensure the index is easily replicable and avoid complexities associated with non-standard loan types. Only USD denominated loans are eligible for the index.

List of eligible loan types:

- Fully funded term loans (fixed and floating rate)

List of ineligible loan types:

- 364-day facility
- Delayed term loans
- Deposit-funded tranche
- Letters of credit
- Mezzanine
- PIK Toggle
- PIK
- Pre-funded acquisition
- Revolving credit
- Synthetic lease
- Unfunded loans

Minimum facility size

A minimum facility size of USD 100 million nominal is required to be eligible for the index.

A constituent shall be removed at the next rebalancing if its nominal outstanding falls below 100 million USD.

Liquidity/Depth of Market

Liquidity/Depth of the market can be measured by the number of prices available for a particular loan and the length of time prices have been provided by the minimum required number of price contributors.

The liquidity check is based on the one month period prior to the rebalancing cutoff date (Liquidity test period). Loans with a minimum liquidity/depth of two for at least 50% of trading days of the liquidity test period are eligible for the indices.

Loans issued less than one month prior to the rebalancing cut-off date require a minimum liquidity/depth of three for at least 50% of trading days in the period from the issue date to the rebalancing cut-off date.

The Liquidity/depth of market threshold is reviewed by S&P DJI on an ongoing basis and may be adjusted to deal with unusual market conditions where liquidity is extremely low.

Credit ratings

Rated (including defaulted loans) and non-rated loans are eligible for the index.

Only issue ratings are considered in the loan selection process. Issuer ratings are not taken into account.

Each rated loan is assigned an index rating based on the ratings from Moody's Investor Services and S&P Global Ratings. If more than one agency publishes a rating for a loan, the average of the ratings determines the index rating. The average rating is calculated as the numerical average of the ratings provided. To calculate the average, each rating assigned an integer number as follows: AAA/Aaa is assigned a 1, AA+/Aa1 a 2 etc. The resulting average is rounded to the nearest integer with 0.5 rounded up. Please refer to the appendix for further details of the credit rating methodology. The methodology can be found on www.spglobal.com/spdji.

Rated loans must have an average rating below investment grade (i.e. an average rating of at least 11) to be eligible for the index. Please note, loans in default are eligible for the index provided they meet all the other criteria

Loans designated as "Not Rated" by both Moody's and Standard & Poor's are not assigned an index rating

Initial time to maturity

The initial time to maturity is measured from the loan's issue date to its maturity date. A minimum time to maturity threshold reduces the index turnover and transaction costs associated with short-dated loans.

A minimum initial time to maturity of 1 year is required for constituents being considered for inclusion into the index.

Existing constituents with time to maturities of less than 1 year remain in the index until maturity provided they meet all other eligibility criteria.

Index Calculation

Loan cash flow and corporate action data

Reference loan data is provided by WSO Data which represents up-to-date reference and transactional information on over 5,000 leveraged loans. WSO Data is accurately maintained in real-time by requiring an executed Credit Agreement for each loan, including subsequent amendments and receives over 7.5 million agent notices per year. This unparalleled access to loan information makes WSO Data the only accurate, up to date, comprehensive database for leveraged loan information.

Price quality control and source

The S&P UBS USD Broad Leveraged Loan Indices will leverage the price quality control process from EVB which will provide bid, mid and ask prices for all eligible loans at the end of each index calculation day.

Rebalancing process

All indices are calculated at the end of each business day and rebalanced at the end of each month. The following section describes the time frame for data publication and provides an overview of the rebalancing process.

The cut-off for liquidity and rating information is 3 business days prior to month-end. Any insertions after the index cut-off day (t-3) will not be considered in the rebalancing process, but will become effective at the end of the following month. The cut-off for the first settlement date for new loans is the last calendar day of the month. Loans with a first settlement date later than 3 days before month-end can only be included in the indices if their amount outstanding and rating is known on t-3¹.

Six business days before month end, the list of eligible loans is compiled, subject to the inclusion rules. Ratings and liquidity/depth of market are ignored at this stage and the minimum amount outstanding limit is USD 100 million.

Five business days prior to the end of each month, a preliminary membership list is published on the S&P DJI website. This list contains preliminary information on rating, liquidity and amount outstanding of all loans which meet the inclusion criteria.

Three business days before the end of each month, a membership list ("Constituents Super List") is published. This Constituents Super List contains the maximum number of constituents for the next month.

The rating and liquidity information and prices for the loans on the Constituents Super List is updated. The list is adjusted for all rating changes occurring three business days prior to month-end after first publication.

The resulting list is the final membership list for the following month and is published as soon as all rating changes are confirmed [Note: loans that are downgraded to below investment grade are not included unless they had previously been on the initial Constituents Super List].

On the last business day of each month, S&P DJI publishes the closing prices of all loans in the final membership list, at the close of business.

1. If the last calendar day falls on a weekend or holiday, that last calendar day is treated as t-1 for the processing and publication schedules.

Exceptions to the monthly rebalancing

Changes to loan weights due to scheduled and unscheduled paydowns are taken into account on their effective date.

Loans that have been fully repaid are considered to be cash for the remainder of the month.

Scheduled rate changes are also effective on the date of the change.

Index data

An index is calculated if there is at least one loan available that matches all inclusion criteria. If no loan qualifies for an index, then its level will remain constant. If at least one loan becomes available again, the index calculation will be resumed from the last calculated level.

Calculation occurs on a daily basis as soon as the consolidated quotes are available. Price quotes are provided and the indices calculated every day in the SIFMA calendar and for the last calendar day of each month. Index calculation is based on bid quotes. New loans are included in the indices at their respective ask prices when they enter the index family. In the event that no new quotes for a particular loan are received, the index will continue to be calculated based on the last available prices. This might be the case in periods of market stress, or disruption as well as in illiquid or fragmented markets.

On the last trading day of a month, after the daily index calculation for the current month's list has been run, the set of active loans to the new month's list is updated. On the last trading day of the month EVB will send pricing levels for all new loans which are to be included in the indices for the following month.

Index weightings

Weight restrictions are applied to restrict the dominance of a facility, issuer or industry. Industry classifications are based on the CLO Industry Classifications, defined in *CLO Classifications*.

Weight restrictions are based on market capitalization and are only updated during the monthly rebalancing process. Details of weight restrictions applicable to the index are listed below:

- Facility level capping: 2%
- Issuer level capping: 5%
- Industry level capping: 15%

Index calculation

All S&P UBS USD Broad Leveraged Loan Indices are market value weighted indices with the loan's amount outstanding at beginning period multiplied by beginning market price plus beginning accrued interest as the weighting factor. The amount outstanding of a loan is adjusted at the monthly rebalancing process at the end of each month. Therefore, the indices are based on adjusted amount outstanding derived from the amount issued and closely related to the amount outstanding of a loan.

Treatment of the special intra-month events

Unscheduled paydowns

Unscheduled redemption payments for loans are taken into account from the date they occur. When a loan is fully repaid intra-month, the loan is treated as cash. The accrued interest up until the redemption date is treated as an unscheduled coupon payment.

Scheduled paydowns

Scheduled redemption payments for loans are taken into account from the date they occur. Loans that are fully repaid intra-month are taken into cash immediately.

Treatment of restructured loans

Restructured loans are removed from the index on the effective date of the restructure, at the previous day's closing price. A cash amount based on the previous day's closing price is added to the redemption cash of the index.

The accrued interest up until the day prior to the restructure date is treated as an unscheduled coupon payment.

Loans issued due to a restructure are considered for inclusion at the next index rebalancing and are subject to the index eligibility criteria listed in the Selection Criteria section of this methodology.

Reinvestment of coupons

Coupon payments are held as cash from payment date until index rebalancing at which point it is reinvested in the index. The cash does not accrue interest.

Price/Accrued Interest

Price and accrued interest are quoted and calculated to the actual nominal amount outstanding. Paydowns within the period are taken into account immediately.

Index history

The Index history starts on 30 June 2006. The indices have a base value of 100 on that date.

Settlement conventions

All iBoxx indices calculate using the assumption of T+0 settlement days.

Calendar

S&P DJI publishes an index calculation calendar available on <https://www.spglobal.com/spdji/en/> under *iBoxx Indices Calendars*. This calendar provides an overview of the index calculation holidays of the iBoxx bond index families each year.

Data publication and access

The table below summarizes the publication of S&P UBS USD Broad Leveraged Loan Indices in the *Indices* section of the website for registered users and on the FTP server.

In addition to the indices detailed in this methodology, other indices covered by this document may be available. For a list of available indices, please refer [here](#).

Table: Data publication frequency, file types and access

Frequency	File Type	Access
Daily	Underlying file – Bond level	FTP Server
	Indices files – Index level	FTP Server / website / Bloomberg (index levels only)
T - 5 onwards	Preview components	FTP Server / website
Monthly	End of month components	FTP Server / website

Below are the access codes for the different vendors and IDs of the Index:

Index	ISIN	Bloomberg Code	RIC
Total Return Index	GB00B51SYQ10	IBOXLTRI	.IBOXLTRI
Price Index	GB00B51T0V13	IBOXLCP1	.IBOXLCP1
Redemption Income Index	GB00B51T1D06	IBOXLRII	.IBOXLRII
Total Interest Index	GB00B50RN406	IBOXLTI1	.IBOXLTI1

Index review

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.

Appendix

Index calculus and analytics

The following indices will be published during the initial launch phase.

- Total Return Index
- Price (Principal return) Index
- Redemption Income Index
- Total Interest Index

It is anticipated that that the Gross Price, Coupon Income, Income and Accrued Indices will be published during later phases of the project. Indices to be published during the later phase are marked with an asterisk.

Market Value

The market value of a single bond at time t is calculated as follows:

$$MV_{i,t} = [P_{i,t} + (A_{i,t} + \lambda D_{i,t-s} \cdot CP_{i,t}) \cdot FA_{i,t}] \cdot F_{i,t} \cdot N_{i,t-s} \cdot F_{i,t-s}^{Cap}$$

The capping factor,

$$F_{i,t-s}^{Cap}$$

will normally be 1, unless in cases where capping is applied.

The market value of the index is the sum of the market values of all bonds at time t and is calculated as follows:

$$MV_t = \sum_{i=1}^n MV_{i,t}$$

Base Market Value

The base market value is the market value of the bond calculated at the rebalancing date (t-s); it also does not take cash payments into account. The base market value of a single bond at time t is calculated as follows:

$$BMV_{i,t-s} = (P_{i,t-s} + A_{i,t-s} \cdot FA_{i,t-s} \cdot N_{i,t-s} \cdot F_{i,t-s}^{Cap})$$

The base market value of the index is the sum of the base market values of all bonds and is calculated as follows:

$$BMV_{t-s} = \sum_{i=1}^n BMV_{i,t-s}$$

Average coupon

The average coupon is nominally weighted. For bonds with a multi-coupon schedule, the current coupon is included.

$$\infty_t = \begin{cases} \sum_{i=1}^n C_{i,t} \cdot W_{i,t}^N \text{Indexofbonds} \\ \sum_{i=1}^n \infty_{i,t} \cdot W_{i,t}^N \text{Indexofindices} \end{cases}$$

The yield of a bond at time t is calculated as follows:

$$(P_{i,t} + A_{i,t}) \cdot F_{i,t} = \sum_{j=1}^n CF_{i,j} \cdot (1 + y_{i,t})^{-L_{i,j}}$$

For bonds during an ex-dividend period, the future cash-flows for the yield calculation exclude the current coupon payment.

The Newton iteration method is used to solve the equation for $Y_{i,t}$, $F_{i,t}$ is a redemption factor that is relevant for sinking funds, amortizing bonds and unscheduled full redemptions. For other bond types, F always equals 1. The yield is set to 0 if $F_{i,t}$ is 0.

The true yield is calculated as follows:

$$Y_{i,t}^t = Y_{i,t} \cdot m$$

Cash Payment

The cash payment for a single bond at time t is the sum of all coupon and scheduled redemption payments since the last index rebalancing plus the redemption value if the bond has already been fully redeemed:

$$CV_{i,t-s} = CV_{i,t-s}^{\text{Coupons}} + CV_{i,t}^{\text{Redemptions}}$$

$$CV_{i,t}^{\text{Coupons}} = \sum_{t-s < j \leq t} G_{i,j} \cdot XD_{i,j-1} \cdot F_{i,j-1} \cdot FA_{t,i,j} \cdot N_{i,t-s} \cdot F_{i,t-s}^{\text{Cap}}$$

$$CV_{i,t}^{\text{Redemptions}} = \sum_{t-s < j \leq t} R_{i,j} \cdot RP_{i,j} \cdot FA_{t,i,j} \cdot N_{i,t-s} \cdot F_{i,t-s}^{\text{Cap}}$$

Generally, it is assumed that there is only one coupon payment and one redemption payment per calculation period. The XD factor only applies for the first coupon payment in the given period. In situations where this is not the case, special cash payments are dealt with as follows:

$$CV_{i,t-s < j \leq t} = (XD_{i,t-s} \cdot G_{i,t1} \cdot FA_{t,i,t1} \cdot F_{i,t1-1} + \sum_{t1 < j \leq t} G_{i,j} \cdot F_{i,j-1} \cdot FA_{t,i,j} + \sum_{t-s < j \leq t} R_{i,j} \cdot RP_{i,j} \cdot FA_{t,i,j}) \cdot N_{i,t-s} \cdot F_{i,t-s}^{\text{Cap}}$$

The different adjustment factors

$$F_{i,t}, F_{i,t-s}$$

are used for sinking funds, amortizing bonds, pay-in-kind bonds, and unscheduled full redemptions. For other bond types, F always equals 1.

The cash payment of all bonds in an index is calculated as follows:

$$CV_t = \sum_{i=1}^n CV_{i,t}$$

Benchmark total return index

The calculation of the local currency total return index is below.

The total return index can be expressed in terms of market values and cash:

$$TR_t = TR_{t-s} \cdot \frac{MV_t + CV_t}{BMV_{t-s}}$$

Total return index calculation for liquid indices

The main difference between the various liquid index methods is the frequency of the cash investment in the money market.

There are two main varieties of liquid indices with cash:

Liquid indices with quarterly or semi-annual rebalancing and monthly cash accrual

For non-rebalancing months, the cash is invested in the money market until the following month-end.

$$CASH_t = CV_t + CASH_{t-s} \cdot (1 + Y_{LIBD_{t-s}}^{1m} \cdot Days_{MM}(t-s, t))$$

Cash

$$CASH_t = (CV_t - CV_{t-1}) + \sum_{t-s < j}^{t-1} [(CV_j - CV_{j-1}) \cdot (1 + Y_{LIBID_j}^{1m} \cdot days_{MM}(j, t))] + CASH_{t-s} (1 + Y_{LIBID_{t-s}}^{1m} \cdot days_{MM}(t-s, t))$$

The cash is added to the standard formula for the indices:

$$TR_t = TR_{t-s} \cdot \frac{MV_t + CASH_t}{BMV_{t-s} + CASH_{t-s}}$$

Daily and Month-to-Date Returns

Daily index returns are calculated for all iBoxx benchmark indices according to the following formula:

$$R_{t-1,t} = \frac{TR_t}{TR_{t-1}} - 1$$

Month-to-date index returns are calculated as follows:

$$R_{t-s,t} = \frac{TR_t}{TR_{t-s}} - 1$$

Annotations

Δy = Parallel shift amount of the sport rate yield curve

$\Delta j,t$ = Change in amount outstanding of bond j at time i

$A_{i,t}$ = Accrued interest of bond i at time t

$A_{i,t-s}$ = Accrued interest of bond i at the last rebalancing

$A^N_{i,t}$ = Nominal accrued interest for bond i at date t

$A^R_{i,t}$ = Real accrued interest for bond i at date t

$ASW_{i,t}$ = Asset swap spread of a bond i at time t

bdays = Business Days

BMS^a_t = Annualized index benchmark spread at time t

BMS^s_t = Semi-annualized index benchmark spread at time t

$BMS^a_{i,t}$ = Annualized benchmark spread of bond i at time t

$BMS^s_{i,t}$ = Semi-annualized benchmark spread of bond i at time t

BMV_{t-s} = Base market value of the index at the rebalancing

$BMV_{i,t-s}$ = Base market value of bond i at the rebalancing

C = Annual Coupon

C_a = Accrued interest for bond i

C_b = Next coupon after the coupon change

C_i = (Next) coupon payment

$C_{i,t}$ = Current coupon of bond i at time t

C_{i+1} = Coupon payment in the period of the coupon change

C^{annual}_i = Annual coupon of bond i

C^N_{i,t,t^\wedge} = Nominal coupon payment for bond i payable at t^\wedge as of the calculation date

C^R_{i,t,t^\wedge} = Real coupon payment for bond i payable at t^\wedge

C_t = Coupon payment

$CASH_t$ = Cash at time t

$CASH_{t-1}$ = Cash at the previous trading day

$CASH_{t-s}$ = Cash at the end of the last month

$CF_{i,j}$ = Cash flow of bond i in the jth period

$CF_{i,t}$ = Cash-flow of bond i at date t quoted to a notional of 100

$CF^K_{i,j}$ = Cash flow of a bond

CO_t = Average coupon at date t

$CO_{i,t}$ = Average coupon for bond i at time t

Cost = Cost factor

$CP_{i,t}$ = Value of the next coupon payment of bond i during an ex-dividend period (because the next coupon is separated from the bond during the ex-dividend period). Outside the ex-dividend period, the value is 0

$CP_{i,t-s}$ = Value of the next coupon payment of bond i (at the last rebalancing) during an ex-dividend period (because the next coupon is separated from the bond during the ex-dividend period). Outside the ex-dividend period, the value is 0

CPI_t = CPI level on the calculation date

$CPI_{i,t0}$ = CPI level on the base date of bond i

$CPI_{t(y-1)}$ = CPI level one year prior to the calculation date

CV_t = Cash payment of all bonds at time t

$CV_{i,t}$ = Cash payment of bond i at time t

CV^{Coupons}_t = Coupon payments of all bonds i at time t

$CV^{\text{Redemptions}}_t$ = Redemption payments of all bonds at time t

$CV^{\text{Coupons}}_{i,t}$ = Coupon payment of bond i at time t

$CV^{\text{Redemptions}}_{i,t}$ = Redemption payment of bond i at time t

$CX^a_{i,t}$ = Annual convexity of bond i at time t

$CX_{i,t}$ = Convexity of bond i at time t

$CX^S_{i,t}$ = Semi-annualized convexity of bond i at time t

$CXPU^S_t$ = Average semi-annualized portfolio convexity at time t

$CXPU^S_{i,t}$ = Average semi-annualized portfolio convexity for bond i at time t

$CXPU^a_t$ = Average annual portfolio convexity at time t

$CXPU^a_{i,t}$ = Average annual portfolio convexity for bond i at time t

CXU^S_t = Average semi-annualized convexity at time t

$CXU^S_{i,t}$ = Average semi-annualized convexity for bond i at time t

CXU^a_t = Average annual convexity at time t

$CXU^a_{i,t}$ = Average annual convexity for bond i at time t

$D_{i,t}$ = Duration of bond i at time t

$d1,d2$ = Day of date $\frac{1}{2}$

$Dat(C_a, C_b)$ = Date of coupon change

$Dat(C_i)$ = Date of i -th coupon payment

$\text{Dat}(C_{i+1})$ = Date of the (next) coupon payment

$\text{Dat}(C_F)$ = Fictitious coupon date one exact coupon period before the first coupon payment date

$\text{Dat}(C_{F-1})$ = Fictitious coupon date one exact coupon period prior to $\text{Dat}(C_F)$

$\text{days}(\text{date1}, \text{date2})$ = Function to calculate the number of days between two dates for the ACT/ACT day count convention

days_{ACT} = Day count fraction using the actual number of days in the period

$\text{days}_{\text{MM}}(t-s, t)$ = Day count fraction between dates $t-s$ and t according to the prevailing money market day count

DP = Dirty Price

DPU_t = Average portfolio duration at time t

$\text{DPU}_{i,t}$ = Average portfolio duration for bond i at time t

DU_t = Average duration at time t

$\text{DU}_{i,t}$ = Average duration for bond i at time t

f_i = Amount invested for bond i

f_i^+ = Amount invested per bond after the rebalancing

f_i^- = Amount invested per bond before the rebalancing

$F_{i,t}$ = The product of the redemption adjustment and the pay-in-kind adjustment factors for bond i at date t

$F_{i,j-1}$ = The product of the redemption adjustment and the pay-in-kind adjustment factors for sinking funds, amortizing and pay-in-kind bonds of fully redeemed bond i at date $j-1$, i.e. one day before j

$F_{i,t-s}$ = The product of the redemption adjustment and the pay-in-kind adjustment factors for bond i at the last rebalancing

F^{Cap}_i = Capping factor for bond i

$F^{\text{Cap}}_{i,t-s}$ = Capping factor for bond i at the last rebalancing

$\text{FA}_{i,t}$ = Flat of accrued flag of bond i and date t (0 if the bond is trading flat of accrued, 1 otherwise)

$\text{FA}_{i,t-s}$ = Flat of accrued flag of bond i at the last rebalancing (0 if the bond is trading flat of accrued, 1 otherwise)

$\text{FA}_{t,i,t}$ = Flat of accrued flag of bond i and date t that is valid on date t (0 if the bond is trading flat of accrued, 1 otherwise)

FSD = First settlement date

$\text{FX}^{\text{LCY/CCY}}_t$ = Spot exchange rate at t (rebalancing)

$\text{FX}^{\text{LCY/CCY}}_{t-s}$ = Spot exchange rate at $t-s$ (last rebalancing)

$\text{FX}^{\text{LCY/CCY}}_{t-s,t}$ = Forward exchange rate at $t-s$ for the period $t-s, t$

$G_{i,j}$ = Coupon payment received from bond i between the day of the payment and month-end. If none the value is set to 0.

$G_{i,t}$ = Value of any coupon payment received from bond i at time t . If none the value is 0.

$G_{i,t1}$ = Value of any coupon payment received from bond i at the first payment date. If none the value is 0.

GI_t = Gross price index at date t

GI_{t-S} = Gross price index at the last rebalancing before t

IC_t = Coupon income index at date t

IC_{t-S} = Coupon income index at the last rebalancing before t

IN_t = Income index at date t

IN_{t-S} = Income index at the last rebalancing before t

IR_t = Redemption income index at date t

IR_{t-S} = Redemption income index at the last rebalancing before t

$IR_{i,t}$ = Index ratio applicable to bond i on the calculation date

IR_{i,t,t^+} = Index ratio based on the most recently published CPI level on the calculation date applicable to t^+

$IR_{i,t,t^{\wedge}}$ = Index ratio applicable to the cash flow at t^* for bond i estimated as of the calculation date t

IV_t = Index market value at time t

IV_{t-S}^{Hedge} = Hedged index market value at the rebalancing

$IV_t^{\text{HedgedPortion}}$ = Hedged portion of the index market value at time t

$IV_t^{\text{UnhedgedResidual}}$ = Unhedged portion of the index market value at time t

LXR_t^{LCY} = Local currency index return level at time t

LXR_{t-S}^{LCY} = Local currency index return level at the last rebalancing, can apply to both total return and price return

LXR_t^{H} = Hedged index returns at time t, can apply to both total return and price return

LXR_t^{U} = Unhedged index returns at time t, can apply to both total return and price return

$L^a_{i,t,j}$ = Time in years for bond i between date t and the jth cash flow

$L_{i,t,j}$ = Time in coupon periods for bond i between date t and the jth cash flow

$L_{t,j}$ = Time difference in coupon periods between t and j

L_t = Number of days between floating rate payments

$LCR^{\text{D}}_{i,t}$ = Daily local index return for bond i at time t

$LCR^{\text{M}}_{i,t}$ = Daily local index return for bond i at time t

$LF_{i,t}$ = Expected remaining life of bond i at time t; average life for amortizing bonds and sinking funds

LFU_t = Average expected remaining life at time t

$LFU_{i,t}$ = Average expected remaining life for bond i at time t

m = Number of coupon payments per year

$m1, m2$ = Month of date $\frac{1}{2}$

M^- = Market value of portfolio before rebalancing
 $MD_{i,t}$ = Modified duration of bond i at time t
 MDU^a_t = Average annualized modified duration at time t
 $MDU^a_{i,t}$ = Average annualized modified duration for bond i at time t
 MDU^s_t = Average semi-annualized modified duration at time t
 $MDU^s_{i,t}$ = Average semi-annualized modified duration for bond i at time t
 $MDPU^a_t$ = Average annualized modified portfolio duration at time t
 $MDPU^a_{i,t}$ = Average annualized modified portfolio duration for bond i at time t
 $MDPU^s_t$ = Average semi-annualized modified portfolio duration at time t
 $MDPU^s_{i,t}$ = Average semi-annualized modified portfolio duration for bond i at time t
 M^+_I = Market value of portfolio after rebalancing based upon index prices
 M^+_P = Market value of portfolio after rebalancing based upon transaction prices
 $MV_{i,t}$ = Market value of bond i at date t
 MV_t = Market value of all bonds in the index at time t
 $MV_{i,t-s}$ = Base market value of bond i at the last rebalancing
 MV_{t-s} = Base market value of the index at the last rebalancing
 MV^P_i = Market value of bond i referring to transaction prices
 MV^I_i = Market value of bond i referring to index price
n = Number of bonds (number of future cash flows in the index)
 $N_{i,t}$ = Adjusted amount issued of bond i at date t
 $N_{i,t-s}$ = Notional of bond i at the last rebalancing = (a) Notional amount outstanding of bond i at the last rebalancing = (b) Fictitious nominal of bond i (substitutes) = (c) Zero (0) for dropped bonds
 $MV^N_{i,t}$ = Inflation-adjusted notional for bond i on the calculation date
 NV_t = Nominal value at date t π_t = Assumed annual inflation on the calculation date
 $OAS_{i,t}$ = is the OAS of a bond i at time t
 $P_{i,t}$ = Clean price of bond i at time t
 P^I_i = Index price of bond i
 $P^N_{i,t}$ = Nominal clean price for bond i on the calculation date
 P^P_i = Portfolio price of bond i
 $P^R_{i,t}$ = Real clean price for bond i on the calculation date
 $P_{i,t-s}$ = Closing price of bond i on the last trading day of the previous month
 PI_t = Price index level at time t

PI_{t-s} = Closing price index level on the last calendar day of the previous month
 PV_{Fixed} = Present value of fixed payments
 $PV_{Floating}$ = Present value of floating payments
 PV_t = Present value of the bond at time t
 PV_- = Present value of the bond after yield curve shifting by $-\Delta y$
 PV_+ = Present value of the bond after yield curve shifting by $+\Delta y$
 $R_{i,t}$ = Redeemed portion of the issue (in % of par) of bond i at date t
 $R_{i,j}$ = Redeemed portion of the issue (in % of par) of bond i in the jth period
 R_i = Index return for bond i
 $R_{t-1,t}$ = Daily index return
 $R_{t-s,t}$ = Month-to-date index return
 $r_{i,t-s,t}$ = Total return of sub-index i from the last rebalancing (t-s) to t
 r^H_t = Hedged return at time t
 RMU_t = Value of the real monetary unit on the calculation date
 $RP_{i,t}$ = Redemption price of a redeemed portion of bond i at date t
 $RP_{i,j}$ = Redemption price of a redeemed portion of bond i in the jth period
 $RYPS_t$ = Average semi-annual portfolio yield at time t
 RYS_t = Average semi-annual yield at time t
 $RYS_{i,t}$ = Average semi-annual yield for bond i at time t
 RY_t = Average annual yield at time t
s = Time since last rebalancing
 $SBC^a_{i,t}$ = Annual spread to benchmark curve of bond i at time t
 $SBC^s_{i,t}$ = Semi-annual spread to benchmark curve of bond i at time t
SD = Settlement date
 $SLC^a_{i,t}$ = Annual spread to LIBOR curve of bond i at time t
 $SLC^s_{i,t}$ = Annual spread to LIBOR curve of bond i at time t
 $SWAP_n$ = SWAP curve rate at the next coupon payment day
t = Time of calculation
 t^* = Date of the coupon payment t^* in the same month as the settlement date t, but before or at t
 t^\wedge = Date of a cash flow
 $t+$ = Calculation date for which most recently published CPI is valid
 $t0$ = Base date of an inflation linked bond

$t(y-1)$ = One year prior to the calculation date

$t1$ = Next coupon payment after the settlement date t

$t2$ = Next-but-one coupon payment after the settlement date t

t_i = Date t_i (the date of the i -th cash flow)

TR_t = Total return index level at time t

TR_t^{Final} = Total Return index level after cost adjustment

TR_t^{Ideal} = Total Return index level before cost adjustment

$TR_{i,t}^{LCY}$ = Local currency total return index level for bond i at time t

TR_t^{LCY} = Local currency total return index level at time t

TR_{t-s}^{LCY} = Local currency total return index level at the last rebalancing

TR_{t-s} = Total Return index level after rebalancing / adjustment from the end of last month

$t-s$ = Date of last rebalancing

w_i = Weight of bond i

w_i^+ = Weight of bond i before rebalancing

w_{cash} = Weight of cash in the index prior to the rebalancing

w_i^+ = Weight of bond i after rebalancing

w_{cash}^+ = Weight of cash in the index after the rebalancing

$w_{i,t}^D$ = Duration weight of bond i at time t

$w_{i,t}^N$ = Nominal weight of bond i at time t

$w_{i,t-s}^{Fix}$ = Fixed weight of bond i at the last rebalancing

$w_{i,t}^{BMV}$ = Base market value weight of bond i at time t

$w_{i,t}^{MV}$ = Market value weight of bond i at time t

$w_{i,t}^{MVC}$ = Market value weighting adjusted for cash of bond i at time t

$XD_{i,t}$ = Variable indicating whether bond i entered the index at the last rebalancing ($t-s$) during its exdividend period

$XD_{i,t-s} = 0$, if the bond enters the index at the ex-dividend period (to ensure that the next coupon payment is excluded from the total return calculation)

$= 1$, if (a) coupon payments are not ex-dividend, (b) has not entered the index during an exdividend period, or (c) entered the index during a previous ex-dividend period

$XD_{i,j-1}$ = The ex-dividend factor of bond i at date $j-1$, i.e. one day before j . $= 0$, if the bond enters the index at the ex-dividend period (to ensure that the next coupon payment is excluded from the total return calculation) $= 1$, if (a) coupon payments are not ex-dividend, (b) has not entered the index during an ex-dividend period, or (c) entered the index during a previous ex-dividend period

XR_t = Rebalancing flag. It is linked to whether an index rebalancing occurs on the day. It is 1 on calculation days where the index re-balances and zero elsewhere. XR applies to full rebalancings as well as partial rebalancings (e.g. month-ends between quarters for liquid indices).

$Y_{i,t}$ = Yield of bond i at time t

y_1, y_2 = Year of date 1/2

$Y^a_{i,t}$ = Annualized yield of bond i at time t

$Y^s_{i,t}$ = Semi-annualized yield of a bond at time

$Y^a_{BM(i),t}$ = Annual benchmark yield of bond i at time t

$Y^s_{BM(i),t}$ = Semi-annual benchmark yield of bond i at time t

$Y^a_{InBMi,t}$ = Annualized yield of the interpolated benchmark of bond i at time t

$Y^s_{InBMi,t}$ = Semi-annualized yield of the interpolated benchmark of bond i at time t

Y^a_{SWAPt} = Annualized value of SWAP curve at time t

Y^s_{SWAPt} = Semi-annualized value of SWAP curve at time t

$Y_{2i,t}$ = Semi-annual yield of bond i at time t

$Y_{LIBIDt-s}^{1m}$ = 1-month interest rate for cash at the last rebalancing

$Z_t(L)$ = the function constructed by natural splines with defined knots

Z-Spread $_{i,t}$ = is the Z-spread of a bond i at time t

CLO Sector Classifications

All loans are classified based on the principal activities of the issuer and main sources of the cash flows used to pay interest and redemptions. Therefore, loans issued from different subsidiaries of the same issuer carry different classifications. Included issuers in the index are classified according to the below sectors.

iBoxx Sectors
Aerospace - Defence
Automotive
Brokers Dealers - Investment Houses - Real Estate
Building - Development
Chemicals - Plastics - Rubber
Clothing - Textiles - Leather
Conglomerate Manufacturing
Conglomerate Services
Consumer Products
Containers - Packaging - Glass
Diversified Business Equipment and Services
Ecological
Electronics
Equipment Leasing
Farming - Agriculture
Finance
Food Services - Beverage - Food - Tobacco
Forest Products
Health Care - Education - Childcare
Home Furnishings - Office Furnishings - Durable Consumer Products

iBoxx Sectors
Insurance
Lodging - Casinos - Leisure Goods - Activities - Gaming - Movies
Machinery - Industrial Equipment
Mining - Metals - Natural Resources - Minerals
Oil and Gas
Personal - Food - Drug Retailers
Printing - Publishing - Broadcasting
Publishing
Retailers
Telecommunications
Transportation
Utilities

Changes to the S&P UBS USD Broad Leveraged Loan Indices

1 October 2025	Index family name changed from iBoxx USD Leveraged Loan indices to S&P UBS USD Broad Leveraged Loan indices.
31 July 2025	Shortened the timeline for the Liquidity/Depth of Market to one month
31 December 2021	Methodology change to remove spread filtering criteria - Consultation on Index methodology 2021
31 October 2013	Launch of the Markit iBoxx USD Leveraged Loan Index

Further information

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ESG Disclosure

EXPLANATION OF HOW ENVIRONMENTAL, SOCIAL & GOVERNANCE (ESG) FACTORS ARE REFLECTED IN THE KEY ELEMENTS OF THE BENCHMARK METHODOLOGY ¹		
1	Name of the benchmark administrator.	S&P Dow Jones Indices Limited
2	Underlying asset class of the ESG benchmark.² [2]	N/A
3	Name of the S&P Dow Jones Indices benchmark or family of benchmarks.	iBoxx Benchmark Statement
4	Do any of the indices maintained by this methodology take into account ESG factors?	No
Appendix latest update:		May 2023
Appendix first publication:		May 2023

1. The information contained in this Appendix is intended to meet the requirements of the European Union Commission Delegated Regulation (EU) 2020/1817 supplementing Regulation (EU) 2016/1011 of the European Parliament and of the Council as regards the minimum content of the explanation of how environmental, social and governance factors are reflected in the benchmark methodology and the retained EU law in the UK (The Benchmarks (amendment and Transitional Provision) (EU Exit) Regulations 2019).

2. The 'underlying assets' are defined in European Union Commission Delegated Regulation (EU) 2020/1816 supplementing Regulation (EU) 2016/1011 of the European Parliament and of the Council as regards the explanation in the benchmark statement of how environmental, social and governance factors are reflected in each benchmark provided and published.ss

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Where applicable, S&P Dow Jones Indices and its index-related affiliates (“S&P DJI”) defines various dates to assist our clients by providing transparency. The First Value Date is the first day for which there is a calculated value (either live or back-tested) for a given index. The Base Date is the date at which the index is set to a fixed value for calculation purposes. The Launch Date designates the date when the values of an index are first considered live: index values provided for any date or time period prior to the index’s Launch Date are considered back-tested. S&P DJI defines the Launch Date as the date by which the values of an index are known to have been released to the public, for example via the company’s public website or its data feed to external parties. For Dow Jones-branded indices introduced prior to May 31, 2013, the Launch Date (which prior to May 31, 2013, was termed “Date of introduction”) is set at a date upon which no further changes were permitted to be made to the index methodology, but that may have been prior to the Index’s public release date.

Please refer to the methodology for the Index for more details about the index, including the manner in which it is rebalanced, the timing of such rebalancing, criteria for additions and deletions, as well as all index calculations.

Information presented prior to an index’s launch date is hypothetical back-tested performance, not actual performance, and is based on the index methodology in effect on the launch date. However, when creating back-tested history for periods of market anomalies or other periods that do not reflect the general current market environment, index methodology rules may be relaxed to capture a large enough universe of securities to simulate the target market the index is designed to measure or strategy the index is designed to capture. For example, market capitalization and liquidity thresholds may be reduced. In addition, forks have not been factored into the back-test data with respect to the S&P Cryptocurrency Indices. For the S&P Cryptocurrency Top 5 & 10 Equal Weight Indices, the custody element of the methodology was not considered; the back-test history is based on the index constituents that meet the custody element as of the Launch Date. Also, the treatment of corporate actions in back-tested performance may differ from treatment for live indices due to limitations in replicating index management decisions. Back-tested performance reflects application of an index methodology and selection of index constituents with the benefit of hindsight and knowledge of factors that may have positively affected its performance, cannot account for all financial risk that may affect results and may be considered to reflect survivor/look ahead bias. Actual returns may differ significantly from, and be lower than, back-tested returns. Past performance is not an indication or guarantee of future results.

Typically, when S&P DJI creates back-tested index data, S&P DJI uses actual historical constituent-level data (e.g., historical price, market capitalization, and corporate action data) in its calculations. As ESG investing is still in early stages of development, certain datapoints used to calculate certain ESG indices may not be available for the entire desired period of back-tested history. The same data availability issue could be true for other indices as well. In cases when actual data is not available for all relevant historical periods, S&P DJI may employ a process of using “Backward Data Assumption” (or pulling back) of ESG data for the calculation of back-tested historical performance. “Backward Data Assumption” is a process that applies the earliest actual live data point available for an index constituent company to all prior historical instances in the index performance. For example, Backward Data Assumption inherently assumes that companies currently not involved in a specific business activity (also known as “product involvement”) were never involved historically and similarly also assumes that companies currently involved in a specific business activity were involved historically too. The Backward Data Assumption allows the hypothetical back-test to be extended over more historical years than would be feasible using only actual data. For more information on “Backward Data Assumption” please refer to the FAQ. The methodology and factsheets of any index that employs backward assumption in the back-tested history will explicitly state so. The methodology will include an Appendix with a table setting forth the specific data points and relevant time period for which backward projected data was used. Index returns shown do not

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