IHS Markit™

CDX North American High Yield Long Credit Index & CDX North American High Yield Credit Short Index Guide

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1. Introduction

The **CDX North American High Yield Long Credit Index and CDX North American High Yield Credit Short Index** (the "Indices") are a pair of indices, the Long index being designed to reflect the performance of a portfolio composed of an on-the-run CDX.NA.HY 5-year CDS index protection seller position and the Short index composed of an on-the-run CDX.NA.HY 5-year CDS index protection buyer position, with the remaining cash component in each index receiving overnight interest.

The indices are rebalanced monthly in order to maintain a CDS notional market exposure ratio of 1:1. The 1:1 market exposure ratio represents the product of the CDS index notional and its respective bond equivalent price (inverse bond equivalent price for the Short index), to the overall index value. The CDS index position held is rolled to the latest issued series on the first business day the new series becomes available semi-annually in March and September (CDS notionals are also rebalanced on the roll dates). The methodology includes transaction costs.

The targeted CDS notional market exposure ratio specifies the amount of CDS the hypothetical portfolio is rebalanced to hold based on the index value. The hypothetical cash component makes up the remainder of the index value. The cash component earns interest at Federal Funds rate minus a spread (s_1 *or* s_2). The cash component spread may be reviewed and updated periodically to reflect a feasible return on cash.

The indices are calculated on all business days "t". Business days are determined with New York and London holiday calendars.

This document covers the rules and calculation methodology for the CDX North American High Yield Long Credit Index and CDX North American High Yield Credit Short Index.

1.1. Publication

The indices are published and distributed once daily after New York close. The indices are calculated every weekday except on holidays in New York and London holiday calendars.

Markit publishes an index calculation calendar which is available in the indices section on www.markit.com/Documentation/Product/IBoxx under Index Calendar.

Index levels are calculated using the daily closing prices. Closing index values are published at the end of each business day in the indices section on www.markit.com/indices for registered users.

1.2. Index Summary Table

Index	Underlying Contracts	Base Currency	Tenor	Position	Ticker	Target CNME Ratio	Interest on cash component	Calendars
CDX North American High Yield Long Credit Index	CDX.NA.HY	USD	5Y	Protection Seller	CDXNAHYL	1:1	Federal Funds minus Spread (s_1)	New York, London
CDX North American High Yield Credit Short Index	CDX.NA.HY	USD	5Y	Protection Buyer	CDXNAHYS	1:1	Federal Funds minus Spread (s_2)	New York, London

2. Index Calculation

The following sections describe the calculation of the indices.

2.1. Target CNME Ratio and Weightings

The variables and values for the target CDS notional market exposure (CNME) ratio, composition fraction and weighting used in the index calculation methodology when rebalancing the CDS indices are specified below.

The CDS notional market exposure ratio represents the product of the CDS index notional and its respective bond equivalent price (inverse bond equivalent price for the Short index), to the overall index value. On monthly rebalancing dates when the CDS indices are rebalanced, the CDS index notional is set such that the CDS notional market exposure ratio is equal to the target CDS notional market exposure ratio of 1:1.

(1) $$L = 1$$

The CDS index target composition fraction is given below:

(2) $$c_n^{CDS} = 100\%$$

The CDS index target weight is given below:

(3) $$w_n^{CDS} = c_n^{CDS} \cdot L = 1$$

where,

$$n = CDX.NA.HY$$

For continuity with guides for indices based on multiple CDS indices, some formulas in this guide use subscript i instead of n to refer to the CDS index generically.

2.2. Index value

The indices have an initial value of 100.

(4) $$I_{t0} = 100$$

The indices are rebalanced monthly, but their value is calculated daily on each business day. The value on the next day is calculated using the overall return (R_t). The Index value represents the value of the hypothetical portfolio of the CDS indices and the hypothetical cash component.

(5) $$I_t = I_{t-1} \cdot (1 + R_t)$$

The overall return is the sum of the return component for the individual CDS index and cash weighted by the ratios of the CDS notional to index value and cash respectively:

(6) $$R_t = x_t^{cash} \cdot R_t^{cash} + x_{n,t}^{CDS} \cdot R_{n,t}^{CDS}$$

where,

$$n = CDX.NA.HY$$

2.3. Returns

CDS Return

The return on each of the CDS indices considers the change in PV of the index held as well as coupons, credit events and transaction costs. The PV, coupon terms and credit event terms in the formula below are for protection seller positions for both Long and Short indices since the $\varphi_{\mathrm{i}}^{\mathrm{CDS}}$ variable is used to make the sign of the $x_{i,t}^{CDS}$ notional ratio to negative for the Short index overall return calculation. Excluding the credit event and transaction cost terms, the units of these are in terms of percentage of the product of the notional and the index factor ($f_{i,t}$) so these can be multiplied by $f_{i,t}$, the notional to index value fraction ($x_{i,t}^{CDS}$) and the index value to give the change in index value. On the roll date $\mathrm{t_{roll}}$ the old series values are used for the PV, coupon and credit event variables, and the new series values are used from the next day ($\mathrm{t_{roll}} + 1$). Note this means on $(t_{roll} + 1)$ both $f_{i,t} \cdot PV_{i,t}^{\%,dirty}$ and $f_{i,t-1} \cdot PV_{i,t-1}^{\%,dirty}$ use the new series data. The transaction cost term is defined in the appendix and uses both old and new series data on roll dates since the old series position is unwound and a new series position is entered into.

(7) $$R_{i,t}^{CDS} = f_{i,t} \cdot PV_{i,t}^{\%,dirty} - f_{i,t-1} \cdot PV_{i,t-1}^{\%,dirty} + \Delta_{tc_{prev},tc} \cdot f_{i,t-1} \cdot Coupon_{i,t-1}^{\%,ifCouponDate} - CEC_{i,t}^{\%} - \varphi_{\mathrm{i}}^{\mathrm{CDS}} . TransactionCosts_{i,t}^{\%}$$

The coupon term has a value of zero if it is not a coupon payment date. The credit event costs ($CEC_{i,t}^{\%}$) are zero on all days except the switching date (t_{swt}) that the index calculation methodology switches from the previous index version data for the underlying CDS index i to the "reduced" index version data where the impacted entity is zero weighted as described in the 'Credit Events' section. Its value is defined in appendix 5.2.

Cash Return

The cash return R_t^{cash} is the product of the interest rate for the cash component and the year fraction between t-1 and t using the Actual/360 convention. The cash component earns interest at Federal Funds minus a spread (s_1 or s_2).

(8) $$R_t^{cash} = (r_{t-1}^{FedFunds} - s) \cdot \Delta_{t-1,t}$$

Where s is the applicable spread, either s_1 or s_2 for the long or short index respectively.

2.4. Ratios

CDS Notional Market Exposure Ratio

For each of the indices the CDS notional market exposure ratio represents the sum of the product of the CDS index notional and its respective bond equivalent price (inverse bond equivalent price for the Short index), to the overall index portfolio value and is given by the following equation:

(9) $$CNME_{tot,t} = \sum_{i \in G} \frac{Notional_{i,t} \cdot (1 + \varphi_{\mathrm{i}}^{\mathrm{CDS}} \cdot f_{i,t} \cdot PV_{i,t}^{\%,clean})}{I_t}$$

The bond equivalent price (inverse bond equivalent price for the Short index) is given by the following equation:

(10) $$BondPrice_{i,t} = (1 + \varphi_{\mathrm{i}}^{\mathrm{CDS}} . f_{i,t} \cdot PV_{i,t}^{\%,clean})$$

On monthly rebalancing dates when the CDS index is rebalanced, the CDS index notional is set such that the CDS notional market ratio is 1:1.

(11) $$CNME_{tot,tr} = \sum_{i \in G} \frac{Notional_{i,tr} \cdot (1+\varphi_i^{\mathrm{CDS}} \cdot f_{i,tr} \cdot PV_{i,tr}^{\%,clean})}{I_{tr}} = \sum_{i \in G} w_i^{CDS} = L = 1$$

CDS Notional to Index Value Ratio

The notional must be determined as described in the next section in order to calculate the CDS notional to index value ratio, $x_{i,t}^{CDS}$.

(12) $$\mathrm{x}_{\mathrm{i,t}}^{\mathrm{CDS}} = \frac{\varphi_{\mathrm{i}}^{\mathrm{CDS}} \cdot \mathrm{Notional}_{\mathrm{i,t-1}}}{\mathrm{I}_{\mathrm{t-1}}}$$

Cash to Index Value Ratio

The cash to index value x_t^{cash} is calculated as 1 minus the fraction of index value from the CDS index dirty PV. The fraction of index value from CDS is calculated using the CDS notional to index value fraction and the dirty PV as a percentage of the product of the notional and the index factor. Note the dirty PV drops when a coupon is paid, increasing the fraction of cash, however this doesn't change the overall index value.

(13) $$x_t^{cash} = \frac{Cash_{t-1}}{I_{t-1}} = 1 - \sum_{i \in L} x_{i,t}^{CDS} \cdot f_{i,t-1} \cdot PV_{i,t-1}^{\%,dirty}$$

If $(\mathrm{t}-1)$ was a roll date, then the PV of the new series is used. If $(\mathrm{t}-1)$ was a date on which the methodology switched to use data from a "reduced" index version after a credit event, then the PV and index factor of the "reduced" index is used.

2.5. CDS Notional

The individual index portfolios are rebalanced monthly to maintain a CDS notional market exposure ratio of 1:1. The CDS notional market exposure ratio represents the product of the CDS index notional and its respective bond equivalent price (inverse bond equivalent price for the Short index), to the overall index portfolio value.

The following relation holds for the underlying CDS index when it is rebalanced:

(14) $$\frac{Notional_{i,tr} \cdot (1+\varphi_i^{\mathrm{CDS}} \cdot f_{i,tr} \cdot PV_{i,tr}^{\%,clean})}{I_{tr}} = w_i^{CDS}$$

The CDS notional value for the underlying CDS index that satisfies the ratio above when rebalancing can then be determined by the formula below obtained from rearranging the preceding equations. The formula below gives the notional after rebalancing on rebalancing date tr.

(15) $$Notional_{i,tr} = \frac{w_i^{CDS} \cdot I_{tr}}{(1+\varphi_i^{\mathrm{CDS}} \cdot f_{i,tr} \cdot PV_{i,tr}^{\%,clean})}$$

If tr is also a roll date, the $f_{i,tr} \cdot PV_{i,tr}^{\%,clean}$ data of the new series is used.

On days that are not rebalancing dates the Notional remains constant and equal to the previous day's notional.

(16) $$\mathrm{Notional}_{\mathrm{i,t \neq tr}} = \mathrm{Notional}_{\mathrm{i,t-1}}$$

2.6. CDS Notional Rebalancing Schedule

For each of the indices the CDS index notional is rebalanced monthly to maintain a CDS notional market exposure ratio of 1:1. Except in March and September, the CDS notional is rebalanced monthly on the third Wednesday of the month or the next business day if not a business day. In March and September the rebalance date is set as the 27th of March and September or the next business day if not a business day, which is typically the date the new CDS index series becomes available. If the underlying CDS index's new series does not become available on the 27th of March/September or next business day if not a business day, it will be rebalanced on the 27th if it is a business day or the next business day after the 27th if not a business day, in addition to also being rebalanced again on the delayed date when the new series for the index becomes available or the next business day if not a business day

There is also a rebalancing threshold, such that if the CDS notional market exposure ratio deviates by more than 10% from the target ratio of 1:1, so either above 1.1:1 or below 0.9:1, an additional rebalancing date is triggered the following business day for the CDS index in addition to the typically scheduled monthly rebalancing.

3. Credit Events

In the case of a credit event, the ISDA Credit Determinations Committee votes to determine if a credit event has occurred for an entity and if an auction will be held. If the vote is positive for an entity in the underlying CDS index, Markit publishes a new index version (the "reduced" index) giving the impacted entity a weight of zero. Note the new "reduced" index version will still be the same CDS index series as the previous version.

In the case of a credit event, the index calculation methodology switches from using the previous index version data for the underlying CDS index i to the "reduced" index version data on the switching date (t_{swt}) when it becomes available. The switching date is the index business day following the Auction Date. However, in contrast to a normal roll to a new series in the CDS return ($R_{i,t}^{CDS}$) formula, if the switch to the "reduced" index data occurs on day $t = t_{swt}$, the $f_{i,t} \cdot PV_{i,t}^{\%,dirty}$ variables use the "reduced" CDS index i version data and $f_{i,t-1} \cdot PV_{i,t-1}^{\%,dirty}$ variables uses the previous index i version data.

4. Index Data

4.1. Credit Prices

All market data used is end of day data at mid-price. Markit CDS index prices as published by the Markit Pricing Service are used. The following pricing snap is used to calculate the index levels:

Index	Pricing Snap
CDX North American High Yield Long Credit Index	New York 17:00 hrs
CDX North American High Yield Credit Short Index	New York 17:00 hrs

4.2. Index History

Index	Base Date	Base Level
CDX North American High Yield Long Credit Index	27 March 2007	100
CDX North American High Yield Credit Short Index	27 March 2007	100

4.3. Data Publication and Access

The table below summarises the publication of CDX North American High Yield Long Credit Index and CDX North American High Yield Credit Short Index data:

Frequency	File Type	Access	Publication Time
Daily	Index levels	Markit FTP Server / Markit website / Bloomberg / Reuters	New York Close

In the event that Markit Pricing Service does not publish the relevant CDS index price/spread or in periods of market stress or disruption as well as in illiquid or fragmented markets preventing the publication of a daily Markit CDS index price, Markit will publish a statement outlining the course of action due to the disruption on the Markit website www.markit.com/Product/Indices under the CDX News page.

In the event of a major structural change within the CDS market impacting the index calculation, Markit will confer with all relevant stakeholders and publish the outcome of any material change as well as any decisions taken at Markit's discretion that has led to the resulting methodology change.

4.4. Calendar

Markit publishes an index calculation calendar which is available in the indices section on www.markit.com/Documentation/Product/IBoxx under Calendar for registered users.

The following business calendars are used for the respective indices:

Index	Business Calendars
CDX North American High Yield Long Credit Index	New York, London
CDX North American High Yield Credit Short Index	New York, London

4.5. Index Restatement

Index restatement follows the policy described in the Markit Benchmark Administration Restatement Policy document, available on the Markit website www.markit.com

4.6. Index Review

Index methodology reviews for the CDX North American High Yield Long Credit Index and CDX North American High Yield Credit Short Index outlined within this guide are performed on a periodic basis. In order to ensure the independence and the objectivity of the CDX North American High Yield Long Credit Index and CDX North American High Yield Credit Short Index, the index rules, their enforcement will be governed by the **Index Advisory Committee**. The purpose of this committee is to conduct a timely review of the index methodology and any changes thereto. As part of the review process, the committee will address any suggested changes brought to it by index stakeholders, such as a potential change to any of the Index Parameters. In the event that following an index review an amendment is to be made to the Index Parameters, a notice of the proposed change will be published on the Markit CDX news page. Following the publication of the impending index rule change, a consultation period is put in place up until the second Wednesday following the notice having been made public or the business day thereafter if the Wednesday is not an index business day. Provided that during the consultation period no concerns raised by index stakeholders are seen to be material by the Index Advisory Committee, the rule change will be implemented for the index close on the index business day following the final day of the consultation period.

5. Appendix

5.1. Transaction Costs

The transaction cost is zero if not a rebalancing tr or roll date t_{roll}. It is the sum of the transaction cost components when rebalancing the CDS index notional and the bid-offer cost component when buying/selling CDS index to roll to the new series on roll dates. In general, the bid offer costs are calculated by assuming the bid-offer spread can be estimated as a percentage of the CDS index spread.

(17) $$\mathrm{TransactionCosts}_{\mathrm{i,t}}^{\%} = \mathrm{RebaltransactionCosts}_{\mathrm{i,t}}^{\%,\mathrm{rebal}} + \mathrm{BidOffer}_{\mathrm{i,t}}^{\%,\mathrm{roll}}$$

The $\mathrm{BidOffer}_{\mathrm{i,t}}^{\%,\mathrm{roll}}$ is zero if not a roll date. On roll dates, it is calculated as follows:

(18) $$\mathrm{BidOffer}_{\mathrm{i,t_{roll}}}^{\%,\mathrm{roll}} = \frac{1}{2} \cdot b_i \cdot d_i \cdot \left(f_{\mathrm{i},t,\mathrm{oldseries}} \cdot \mathrm{S}_{\mathrm{i,t_{roll},oldseries}} \cdot RPV01_{\mathrm{i,t_{roll},oldseries}} + f_{\mathrm{i},t,\mathrm{newseries}} \cdot \mathrm{S}_{\mathrm{i,t_{roll},newseries}} \cdot RPV01_{\mathrm{i,t_{roll},newseries}}\right)$$

For this methodology to avoid unit scaling factors RPV01 is defined as the value per unit of notional of the clean premium leg per unit of coupon. This is 10,000 times the value per unit notional of the clean premium leg per basis point of coupon. According to this document's definition as the value per unit of notional of the clean premium leg per unit of coupon, the $RPV01_{i,t}$ should have a value of about 5 for a 5Y CDS index at inception.

$\mathrm{RebalTransactionCosts}_{\mathrm{i,t}}^{\%,}$ are zero if it is not a rebalancing date otherwise it's calculated as:

(19) $$\mathrm{RebalTransactionCosts}_{\mathrm{i,tr}}^{\%,} = \mathrm{ClearingCosts}_{\mathrm{i,tr}}^{\%} + \mathrm{BidOffer}_{\mathrm{i,tr}}^{\%,\mathrm{rebal}}$$

The clearing cost is calculated as follows:

(20) $$\mathrm{ClearingCosts}_{\mathrm{i,tr}}^{\%} = \frac{1}{\mathrm{x}_{\mathrm{i,t}}^{\mathrm{CDS}}} \cdot \mathrm{g}$$

The bid-offer rebalancing transaction cost is calculated using an approximation $\eta_{i,tr}$ for the absolute value of the amount of notional to be bought or sold in the rebalancing to avoid circular dependencies in the formulas:

(21) $$\mathrm{BidOffer}_{\mathrm{i,tr}}^{\%,\mathrm{rebal}} = f_{\mathrm{i,tr}} \cdot \frac{\eta_{\mathrm{i,tr}}}{\mathrm{Notional}_{\mathrm{i,tr-1}}} \cdot \frac{1}{2} \cdot \mathrm{b_i} \cdot \mathrm{S}_{\mathrm{i,tr}} \cdot RPV01_{\mathrm{i,tr}}$$

(22) $$\eta_{\mathrm{i,tr}} = \left| \frac{\mathrm{w_i^{CDS}} \cdot \mathrm{I_{tr}^*}}{(1+\varphi_{\mathrm{i}}^{\mathrm{CDS}} \cdot \mathrm{f_{i,tr}} \cdot \mathrm{PV}_{\mathrm{i,tr}}^{\%,\mathrm{clean}})} - \mathrm{Notional}_{\mathrm{i,tr-1}} \right|$$

(23) $$\mathrm{I_{tr}^*} = \mathrm{I_{t-1}} \cdot (1 + \mathrm{R_t^*})$$

$\mathrm{I_{tr}^*}$ and $\mathrm{R_t^*}$ are the values of $\mathrm{I_{tr}}$ and $\mathrm{R_t}$ calculated assuming $\mathrm{BidOffer}_{\mathrm{i,tr}}^{\%,\mathrm{rebal}}$ on that day is zero but including the $\mathrm{BidOffer}_{\mathrm{i,tr}}^{\%,\mathrm{roll}}$ if it is a roll date. If it is a roll date $\eta_{i,t_{roll}}$ is calculated using the formula above, where the $f_{i,tr} \cdot PV_{i,tr}^{\%,clean}$ in the denominator of the term in $\eta_{i,t_{roll}}$ is calculated with the new series data.

Transaction costs at inception

The index value at t_0 (I_{t_0}) is 100. No transaction cost is applied for the CDS index series included at inception.

5.2. Credit Event Costs

The Credit Event Costs as a percentage of notional are calculated as described below. It reflects the net protection payment cost in the case of a credit event. The Credit Event Costs are zero on all days except the switching date (t_{swt}) that the index calculation methodology switches from using the previous index version data for the underlying CDS index i to the new "reduced" index version data where the impacted entity is zero weighted, when it becomes available.

The formula below gives the credit event costs:

(24) $$\mathrm{CEC}_{i,t_{swt}}^{\%,non-res} = \frac{1}{E_i} \cdot \left(\left(1 - \text{Recovery Rate}_{e,(t_{swt}-1)}\right) - \left(\Delta_{tc_{prev},t_{EDD}} \cdot \text{Coupon}_{i,t_{EDD}}^{\%}\right) \right)$$

In the event that multiple entities are removed from the underlying CDS index series on the same day, the Credit Event Costs of each of these would be added. However, if an entity had been removed previously at an earlier date and its Credit Event Cost already included previously, it is not included again.

5.3. Index Parameters

Symbol	Value	Description
b_n	.006	fraction of CDX.NA.HY index spread assumed to be the estimate of the bid-offer spread
d_n	.4	Roll trade discount parameter for CDX.NA.HY reflecting reduced transaction costs for trades rolling CDS indices around roll dates
g	.0000077	Clearing cost parameter
s_1	As per Table A	Spread subtracted from benchmark interest rate for overall interest on cash component of CDX North American High Yield Long Credit Index
s_2	As per Table A	Spread subtracted from benchmark interest rate for overall interest on cash component of CDX North American High Yield Credit Short Index

Table A – Spread removed from Federal Funds rate

Start Date	s_1	s_2
27/03/2007	0.83%	0.83%
27/03/2008	0.31%	0.31%
27/03/2009	0.03%	0.03%
27/03/2010	0.05%	0.05%
27/03/2011	0.06%	0.06%
27/03/2012	0.07%	0.07%
27/03/2013	0.05%	0.05%
27/03/2014	0.08%	0.08%
27/03/2015	0.09%	0.09%
27/03/2017	0.02%	0.02%
27/03/2018	-0.11%	-0.11%

6. Annotations

b_n	Percentage of the CDS index spread of CDX.NA.HY assumed to be Bid/Offer spread
$BidOffer_{i,t}^{\%,roll}$	Bid/offer cost when buying/selling CDS index to roll to the new series on roll dates
$BidOffer_{i,tr}^{\%,rebal}$	Bid/offer rebalancing transaction cost
$\mathrm{ClearingCosts}_{\mathrm{i,tr}}^{\%}$	Clearing cost representing other transaction costs for trading cleared CDS indices that are not bid-offer related
c_n^{CDS}	CDX.NA.HY target composition fraction
$CNME_{tot,t}$	The CDS notional market exposure ratio represents the product of the CDS index notional and their respective bond equivalent price (inverse bond equivalent price for the Short index), to the overall Index portfolio value.
$\mathrm{Coupon}_{\mathrm{i,t-1}}^{\%,\mathrm{ifCouponDate}}$	Coupon as a percent of the product of the notional and the index factor (has a value of 0 if not a coupon payment date)
$\mathrm{CEC}_{\mathrm{i,t}}^{\%}$	Credit Event Cost as a percent of the notional
d_n	Roll trade discount parameter for CDX.NA.HY reflecting reduced transaction costs for trades rolling CDS indices around roll date
e	Entity impacted by credit event
E_i	Original total number of entities presents in the CDS index series i on the day it was created
$f_{i,t}$	Index factor representing the fraction of entities remaining in the CDS index out of the total number of entities at the CDS index series inception
g	Clearing cost parameter
$\mathrm{I_t}$	Index value at day t
$\mathrm{I_{tr}^*}$	$\mathrm{I_{tr}}$ calculated assuming $BidOffer_{i,tr}^{\%,rebal}$ on that day is 0 but including $BidOffer_{i,tr}^{\%,roll}$ if a roll date
i	Denotes the underlying CDS Index
L	Target CDS notional market exposure ratio
$\eta_{i,tr}$	Approximation of absolute value of the amount notional to be bought or sold at rebalancing
$\mathrm{Notional_{i,tr}}$	CDS notional
$\mathrm{PV}_{\mathrm{i,t}}^{\%,\mathrm{clean}}$	CDS index protection seller clean PV as a percent of the product of the notional and the index factor

$\mathrm{PV}_{\mathrm{i,t}}^{\%,\mathrm{dirty}}$	CDS index protection seller dirty PV as a percent of the product of the notional and the index factor
$r_{t-1}^{FedFunds}$	Federal Funds interest rate on date *t-1*
$\mathrm{R_t}$	Overall index return at time t
$\mathrm{R_t^{cash}}$	Cash return
R_t^*	R_t calculated assuming $BidOffer_{i,tr}^{\%,rebal}$ on that day is 0 but including $BidOffer_{i,tr}^{\%,roll}$ if a roll date
$RebalTransactionCosts_{i,t}^{\%,}$	Transaction cost for rebalancing
$\mathrm{Recovery\ Rate_{e,(t_{swt}-1)}}$	Recovery rate for the entity e
$RPV01_{i,t_{roll},series}$	Clean risky annuity or risky PV01 for old or new series
s_1	Spread subtracted from benchmark interest rate for overall interest on cash component of CDX North American High Yield Long Credit Index
s_2	Spread subtracted from benchmark interest rate for overall interest on cash component of CDX North American High Yield Short Credit Index
$\mathrm{S_{i,t_{roll},series}}$	CDS index spread of the old or new series on the roll date. It should be entered as a decimal number, so for example a 250bp spread should be entered as 0.0250.
$\mathrm{t_0}$	Inception date (also considered as a rebalancing date)
t_{swt}	The date the index calculation methodology switches from using the previous index version data for the underlying CDS index i to the "reduced" index version data. It is the day following the Auction Date
t	Business day t
$\mathrm{t-1}$	Previous business day
tr	Refers to rebalancing date
$\mathrm{TransactionCosts_{i,t}^{\%}}$	Transaction cost as a percent of the notional
w_n^{CDS}	CDX.NA.HY target weight
$\mathrm{x_t^{cash}}$	Ratio of cash to index value at time t
$\mathrm{x_{i,t}^{CDS}}$	Ratio of CDS notional to index value
$\Delta_{\mathrm{tc_{prev},tc}}$	Year fraction between the previous and the current coupon payment date using the actual/360 convention
$\Delta_{\mathrm{tc_{prev},t_{EDD}}}$	Year fraction from the previous coupon date to the Event Determination Date using the Actual/360 convention
$\varphi_{\mathrm{i}}^{\mathrm{CDS}}$	A long/short variable that is equal to 1 if CDS index i are protection seller positions or -1 if they are protection buyer positions

7. Further Information

Glossary of key terms

Further information regarding use of the Markit Credit Indices and glossary of key terms are available in the Markit Credit Index Primer located in the indices documentation section under Primers on wwww.markit.com/indices.

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