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Markit Credit Indices
A Primer

April 2012

Scope of the document

This document aims to outline the different credit indices owned and managed by Markit, their characteristics and differences, and how they trade. The focus is on synthetic indices backed by single name bonds CDS (senior unsecured) and single name loans CDS (senior secured): the Markit CDX, the Markit iTraxx and the Markit iTraxx SovX for bonds, and the Markit iTraxx LevX and Markit LCDX for loans. Synthetic structured indices, such as the ABX and the CMBX, are not covered in this document as their functioning is quite different.

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Section 1 – Credit Default Swaps

Definition

A Credit Default Swap (CDS) is a contract between two parties, a protection buyer who makes fixed periodic payments, and a protection seller, who collects the premium in exchange for making the protection buyer whole in case of default. In general trades are between institutional investors and dealers.

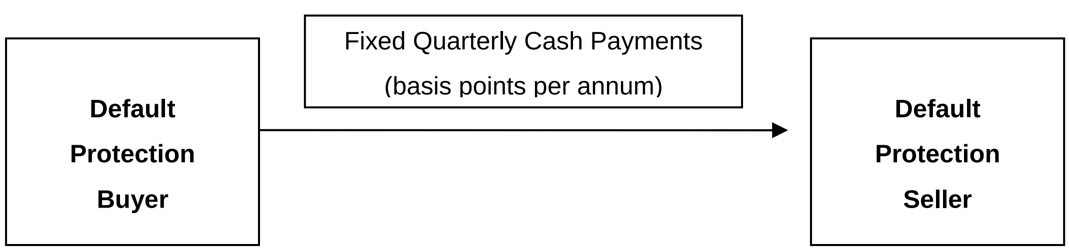
CDS are over-the-counter (OTC) transactions. They are similar to buying/selling insurance contracts on a corporation or sovereign entity's debt, without being regulated by insurance regulators (unlike insurance, it is not necessary to own the underlying debt to buy protection using CDS). Before trading, institutional investors and dealers enter into an ISDA Master Agreement, setting up the legal framework for trading.

Each contract is defined by

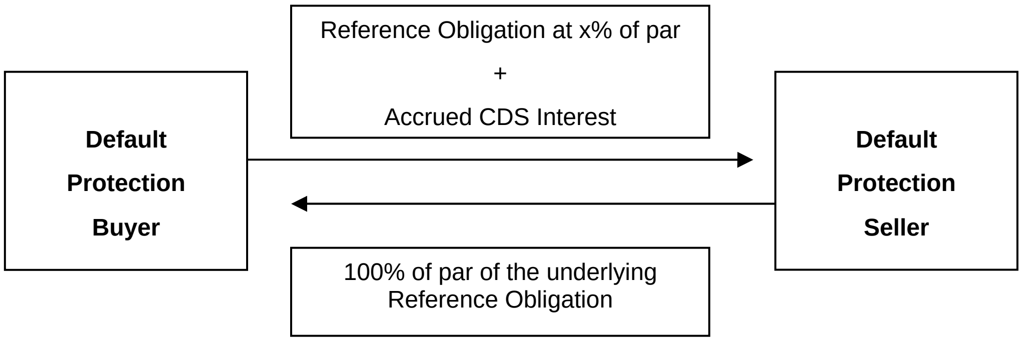
- A Reference Entity (the underlying entity on which one is buying/selling protection on);
- A Reference Obligation (the bond or loan that is being "insured" - although it doesn't have to be the deliverable instrument in a default situation and doesn't have to have the same maturity as the CDS, it designates the lowest seniority of bonds that can be delivered in case of default);
- A Term/Tenor (5 years are the most liquid contracts);
- A Notional Principal;
- Credit Events (the specific events triggering the protection seller to pay the protection buyer – The defined events are bankruptcy, failure to pay, debt restructuring, and the rare obligation default, obligation acceleration, and repudiation/moratorium).

Markit Reference Entity Database (RED) is the market standard that confirms the legal relationship between reference entities that trade in the credit default swap market and their associated reference obligations, known as "pairs". Each entity is identified with a unique 6-digit alphanumeric code, and a 9-digit code identifies the pair. RED codes are widely and successfully used by CDS market participants to electronically match and confirm CDS transactions. The RED "preferred reference obligation" is the default reference obligation for CDS trades based on liquidity criteria.

In case of a credit event, under physical settlement the protection buyer has to deliver a bond of seniority at least equal to that of the reference obligation – if there are multiple bonds deliverable, the protection buyer will most likely deliver the cheapest bond to the protection seller. We can represent the life of a CDS with the following cash flows:
From initiation of trade to maturity if there is no credit event:



In case of Credit Event



The standard settlement mechanism for Loan CDS and Corporate CDS is cash settlement via a Credit Event Auction. The difference with the example above is that instead of exchanging a cash instrument for par, the exchange is a cash amount equal to par minus the recovery set in the auction. Further details will be covered under Credit Events section later.

Types

The different types of CDS contracts traded:

- CDS: indicates that the underlying reference entities and obligations are senior unsecured bonds, issued by corporate or sovereign issuers
- LCDS: Loan-only CDS refers to contracts where protection is bought and sold on syndicated secured leveraged loans. These are higher in the capital structure (and usually with higher recovery rates) than CDS.
- MCDS: The reference entity is a municipality, and the reference obligation a municipal bond.
- ABCDS: CDS on structured securities (Asset Backed Securities typically)
- Preferred CDS: CDS on Preferreds

Uses

Hedging

- CDS allow capital or credit exposure constrained businesses (banks for example) to free up capacity to facilitate doing more business.
- CDS can be a short credit positioning vehicle. It is easier to buy credit protection than short bonds.
- For LCDS, counterparties can assign credit risk of bank loans without requiring consent of lender (assigning bank loans often requires borrower consent/notification), therefore LCDS reduce bank exposure to credit risk without disturbing client relationships.
- CDS may allow users to avoid triggering tax/accounting implications that arise from sale of assets

Investing

- Investors take a view on deterioration or improvement of credit quality of a reference credit
- CDS offer the opportunity to take a view purely on credit
- CDS offer access to hard to find credit (limited supply of bonds, small syndicate)

- CDS allows investors to invest in foreign credits without bearing unwanted currency risk
- Investors can tailor their credit exposure to maturity requirements, as well as desired seniority in the capital structure
- CDS require little cash outlay and therefore creates leverage

The standardized documentation, liquidity, ability to customize terms, and pure credit focus has made the CDS market a de facto standard for expressing a view on the credit market (either single credits, or baskets such as indices).

Pricing

CDS contracts in general trade based on a spread, which represents the cost a protection buyer has to pay the protection seller (the premium paid for protection). The protection buyer is said to be short the credit as the value of the contract rises the more the credit deteriorates.

The value of the CDS contract increases for the protection buyer if the spread increases. For example, a protection buyer paying a spread of 60bps when the current spread is 90bps would be able to unwind the position at a higher spread level.

Distressed names are trading with an upfront payment and a standard running spread. Instead of trading a name with a spread of 1000, the protection buyer will generally pay running coupon of 500, and an upfront amount to compensate the seller for the difference between 1000 and 500 for the life of the trade. In a 5 year trade maturing on 20 September 2014 entered on 13 July 2009, the upfront amount will be approximately 16.75 points, or $167,500 for $1 million of protection.

Estimated recovery is a key part of valuing a CDS contract, as it represents the value post-default, and therefore impacts expected cash flows. For investment grade names, recovery is generally assumed to be 40% (as the probability of default is low, the recovery rate is at best an estimate). For distressed names however, where the probability of default is higher, recovery tends to be more precisely defined.

It is important to note that with the introduction of fixed coupon for North American Corporate credits on April 8th2009, and for European Corporates and Sovereigns on June 20th2009, single name contracts are trading using a fixed coupon, similar to indices and distressed names. The fixed coupons for North America are 100 and 500, and 25/100/300/500/750/1000 in Europe. The North American LCDS contract trades with a fixed coupon of 0/100/250/500 as of April 5th 2010. There are continuing commitments for EM CDS, and MCDS to move to trading with a fixed coupon.

Markit offers comprehensive data service including daily credit curves for over 3,500 entity-tiers including recovery rates, and valuation services to value trades.

Notional

It is important here to note that CDS trades refer to a notional, the quantity of the underlying asset or benchmark to which the derivative contract applies. It doesn't refer to any cash exchange at time of trade, the mark-to-market size of the trade. It is akin to the amount of insurance bought, not the premium paid.

Section 2 - Credit Indices

A Brief History

Synthetic credit indices originated in 2001 when JPMorgan launched the JECI and Hydi indices, and Morgan Stanley launched Synthetic TRACERS. Both firms merged their indices under the Trac-x name in 2003. During the same period iBoxx launched credit derivatives indices. In 2004 Trac-x and iBoxx merged to form the CDX in North America and the iTraxx in Europe and Asia. After being the administrator for the CDX and calculation agent for iTraxx, Markit acquired both families of indices in November 2007, and owns the iTraxx, CDX, SovX, LevX, and LCDX Indices for derivatives, and the iBoxx indices for cash bonds.

Benefits

Credit indices have expanded dramatically in recent years, with volumes rising, trading costs decreasing, and a growing visibility across financial markets. Benefits of using CDS indices include:

- Tradability: Credit indices can be traded and priced more easily than a basket of cash bond indices or single name CDS
- Liquidity: Significant liquidity is available in indices and has also driven more liquidity in the single name market
- Operational Efficiency: Standardized terms, legal documentation, electronic straight-through processing
- Transaction Costs: Cost efficient means to trade portions of the market
- Industry Support: Credit indices are supported by all major dealer banks, buy-side investment firms, and third parties (for example, Markit offers transaction processing and valuations services)
- Transparency: Rules, constituents, fixed coupon, daily prices are all available publicly

Participants

There are five main parties involved in credit indices:

- Markit – Markit owns and operates the indices: including licensing, marketing, administration, and calculation. Markit publishes prices daily on its website
- Banks – Banks trade indices on their own behalf and provide liquidity for their clients. They are intimately involved in the indices, actively participating in rolls, and playing a key part in product development
- Institutional Investors – Investors can hedge their positions, or express views on a specific market segments via credit indices
- ISDA – Markit and banks have worked with ISDA to create globally approved legal documentation for CDX, LCDX, iTraxx, SovX and LevX indices
- Third parties – Third parties have made trading credit indices easier by integrating them into their platform. For example, MarkitSERV, a joint venture between Markit and DTCC, allows buyside and sellside firms to communicate and confirm trade details with counterparties..

Key characteristics

Appendix 1 presents a roadmap of the major credit indices, number of entities included in each index, roll dates, maturities available to trade, and other details for each index. This section outlines the similarities and differences between the various types if credit derivative indices.

Differences between Bond and Loan-only CDS Indices

	Bonds	Loans
Deliverable	Bonds or Loans	Loans only
Cancellability	CDS trade is not cancellable in cases where all the underlying debt is called or matures	Legacy LCDS can be terminated early if an issuer repays all its secured debt without issuing new relevant debt. Bullet LCDS cannot be early terminated due to repayment.
Valuation	Duration is not adjusted for cancellability	Duration is not adjusted for cancellability
Credit Event	The three most commonly used credit events are failure to pay, bankruptcy and restructuring. Also defined but rarely seen are Obligation, Acceleration, Repudiation / Moratorium	Bankruptcy, Failure to Pay, and - for LevX only - Restructuring

Differences between LevX and LCDX

	LevX	LCDX
Roll Date	March and September 20th	April and October 3rd
Region	Europe	North America
Reference	Reference Obligation	Reference Entity
Currency	EUR	USD or EUR
Credit Event	Bankruptcy, Failure to Pay, Restructuring	Bankruptcy, Failure to Pay
Deliverables	LevX only includes Senior (1st Lien) loans – the Sub index (2nd/ 3rd Lien) is not rolled anymore	LCDX only includes 1st Lien loans
Loan Criteria Eligibility	Senior – min EUR500 million deal	Loans must be on the Markit Syndicated Secured List *
Entities	Senior – 40 names	100 names
Business Days	London and TARGET Settlement Day	USD – New York and London EUR – London and TARGET Settlement Day

* Markit's Syndicated Secured List (SSL) is a database of syndicated secured loans traded in the primary and secondary markets including information about the priority of such loans gathered from market participants and other information. Markit RED maintains the SSL.

Differences between iTraxx and CDX

	iTraxx	CDX
Region	Europe and Asia	North America and Emerging Markets
Credit Event	Bankruptcy, Failure to Pay, Modified Restructuring	Bankruptcy, Failure to Pay
Currency	Europe – EUR Japan – JPY Asia ex-Japan – USD Australia – USD	USD, EUR
Reference Entities	A liquidity poll decides inclusions and exclusions	A rules-based approach, that takes into account liquidity (as well as sectors and ratings for high yield names), determines inclusions and exclusions
Business Days	London and TARGET Settlement Day	USD – New York and London EUR – London and TARGET Settlement Day

Coupon Payments

Payments from the protection buyer to protection seller are made on a quarterly basis (March 20, June 20, September 20, December 20) and accrue on a Actual/360, except for CDX.EM, where, if the master transaction relates to an Index with an effective date prior to September 20, 2009, the payments are semi-annual on June 20 and December 20 of the year; otherwise, coupon payments are on March 20, June 20, September 20 and December 20 of the year, similar to other CDX indices.

Rules

Indices roll every six month - a new series of the index is created with updated constituents. The previous series continues trading, although liquidity is concentrated on the on-the-run series.

The roll consists of a series of steps which are administered by Markit:

- For the Markit iTraxx Europe indices, liquidity lists are formed from the trading volumes from the DTCC TIW . Markit applies the index rules (outlined in Appendix 5) for the respective indices to determine the index constituents. Following is a summary of the process:
  - iTraxx Europe main: Entities are removed from the previous series if they are no longer eligible due to a corporate action or a rating change. Further ranked below 125% of the number of entities in a given sector or ranked below 150 in the overall list of all sectors are removed and replaced by more liquid entities in the respective sectors. Entities ranked in the top 75% of the names in any sector but not included in the previous index series is included and the least liquid entity from the sector. Final Index comprises 30 Autos & Industrials, 30 Consumers, 20 Energy, 20 TMT, 25 Financials

  - iTraxx Europe Crossover index: The highest ranked non investment grade entities from the liquidity lists which satisfy the minimum and maximum spread criteria and also have sufficient amount of outstanding debt.

- For the Markit iTraxx Asia Pacific indices, liquidity lists are submitted by dealers to Markit. Markit aggregates the liquidity lists and applies the index rules (outlined in Appendix 5) for the respective indices to determine the index constituents.
- For the Markit CDX Investment Grade and High Yield indices, a rules-based approach is used for determining new constituents during a roll. As an initial step, entities that are no longer current due to corporate actions are removed, as are entities that may no longer be rated within the appropriate ratings class or that do not have enough debt outstanding. A list provided by DTCC, that ranks entities in order of their liquidity, is then referred to for deciding exclusions and inclusions to the new series. A brief overview of the process is as follows:
  - CDX IG: entities that are in the lowest 30% of the DTCC liquidity list and are constituents of the index are removed from the upcoming series. Entities that are in the top 20% of the DTCC liquidity list are added if they are not already constituents of the index.
  - CDX HY: along with considering their ranking on the DTCC liquidity list, entities are removed and added based on the economic sector they belong to and their specific credit rating. The rules attempt to bring the composition of the CDX HY index closer to a benchmark index, that being the Markit iBoxx $ Liquid High Yield Index.

  Please refer to Appendix 5 for details on these rules.
- For the Markit CDX EM, MCDX and LCDX indices, the following steps are applicable:
  - Exclusions: entities are excluded from the index if they no longer qualify because of corporate actions or are voted out by dealer polls.
  - Inclusions: New names are added to the each index to keep the number of constituents the same. Inclusion is decided by dealer polls.
- Reference obligation assignment: For each entity in the new index, a suitable reference obligation is identified by Markit RED, with input from the dealers
- Fixed Rate determination: Licensed Dealers determine the spread for each index and maturity. This is done via a dealer call in Europe and Asia. The fixed coupons are generally set equal to the closest standard single name coupons (for the respective region) to the weighted average spreads of constituents of the respective index. In addition to the fixed rate, CDX and iTraxx dealers also agree on a recovery rate used for upfront calculations (not for the determination of cash flows in case of a credit event)
- Annex: The final annex, stating the composition of each index, and fixed rate is published by Markit. The annex is attached to each index trade confirmation
- New Series starts trading

Timelines for the rolls of Markit CDX, Markit LCDX, Markit MCDX, Markit iTraxx, and Markit iTraxx LevX are given as examples in Appendix 2.

The complete rules can be found on Markit's website:

Markit CDX and LCDX

http://www.markit.com/en/products/data/indices/credit-and-loan-indices/index-annexes/primers.page?

Markit iTraxx Europe and Asia

http://www.markit.com/en/products/data/indices/credit-and-loan-indices/itraxx/documentation.page?

Markit iTraxx LevX

http://www.markit.com/en/products/data/indices/credit-and-loan-indices/levx/documentation.page?

Markit iTraxx SovX

http://www.markit.com/en/products/data/indices/credit-and-loan-indices/sovx/sovx-documentation.page?

Additional details on Markit iTraxx and CDX index rules can be found in Appendix 5.

Section 3 – Trading Credit Indices

Trading Overview

Trading Conventions

Indices trade either on spread or on price. This convention mimics the cash instrument where some bonds trade on yields, and others on price. The CDS indices convention matches that of the underlying cash instruments.

Spread	CDX (IG, HVOL), iTraxx (Europe, Japan, Asia ex-Japan, Australia), SovX, MCDX
Price	CDX (HY, EM), LCDX, LevX

Intuitively, if an index has a fixed coupon of 60 and the current coupon is 90, it is positive for the protection buyer (they are paying 60 for something that is currently worth 90). The price is inversely related to spread so the price of the index at 90 is lower than the price at 60, and as the protection buyer is short the credit a drop in price is positive.

Where can I trade?

Credit Indices are over-the-counter (OTC) products and can be traded with licensed dealers providing liquidity.

A list of banks providing liquidity for the US indices is available on:

http://www.markit.com/en/products/data/indices/credit-and-loan-indices/cdx/contributing-banks.page?
http://www.markit.com/en/products/data/indices/credit-and-loan-indices/lcdx/dealers.page?

A list of banks providing liquidity for the European and Asian indices is available on:

http://www.markit.com/en/products/data/indices/credit-and-loan-indices/itraxx/contributing-banks.page?
http://www.markit.com/en/products/data/indices/credit-and-loan-indices/levx/contributing-banks.page?

A list of banks providing liquidity for the Sovereign CDS indices is available on:

http://www.markit.com/en/products/data/indices/credit-and-loan-indices/sovx/sovx-market-makers.page?

How do I trade?

Buying and selling the indices can be compared to buying and selling portfolios of loans or bonds. A buyer takes on the credit exposure to the loans or bonds, and is exposed to defaults, similar to buying a cash portfolio (buying the index is equivalent to selling protection). By selling the index, the exposure is passed on to another party. Exposure is similar in both cases.

The indices trade with a fixed coupon that is paid quarterly (except for series of Markit CDX EM with an effective date prior to September 2009, which pay the coupon semi-annually). The coupon is paid by the buyer of protection on the index, who is in effect the seller of the index and is taking a short position. The protection seller, or buyer of the index, receives this quarterly coupon. Upfront payments are made at initiation and close of the trade to reflect the change in price of the index. The indices are quoted on a clean basis, meaning that accruals are not taken into account for pricing purposes.

Example:
The index launches with a price of 100 on September 20th, and a fixed coupon of 60. Investor A buys \$10,000,000 notional protection on the index on November 30th, when the spread has moved to 90 and

corresponding price is 98.67 (the price is par minus the present value of the spread differences). Investor A makes an upfront payment to account for the movement in the spreads.
Payment = 10,000,000 * (100-98.67)/100 = $133,000
In addition, he will receive the accrued interest up to trade date (as he will have to make the full coupon on coupon payment date – this simplifies operations as all protection buyers make the same payment on the same date): 71 /360 * 10,000,000 * 0.006 = $11,833.3
Net outflow = $121,166.67
December 20th – Investor A pays the fixed coupon.
Cash outflow = 0.006 * 10,000,000 * 91/360 = $15,166.67

March 13th – Investor A closes the trade on March 13 when the spread is 120 and the equivalent price is 97.44. Investor A pays the accrued interest up to trade date and receives payment.
Inflow = 10,000,000 * (100-97.44)/100 - 0.006*10,000,000 * 84/360 = 256000 – 14000 = $242,000

Markit offers a variety of services around trading of single name CDSs and indices. Markit Quotes and Intraday offer intra-day CDS and indices levels, and Markit Portfolio Valuations provide buyside firms daily valuations using Markit's extensive dataset.

Valuation

Markit calculates the official levels for the Markit iTraxx and CDX suite of indices, based on their regional market close times. These levels are published on the Markit website (www.markit.com) and are freely accessible to the public.

Markit collects mid, or bid/offer spreads (or prices, as applicable) for the Markit iTraxx and CDX indices from licensed iTraxx and CDX market makers respectively. The collected spreads (or prices) need to be dated on the calculation date. If bid and offer spreads are submitted, Markit calculates mid-spreads as being the mid-point between bid and offer.

In order to derive calculated index levels, contributions need to be available from at least three approved data sources for a particular index. The calculated level is the simple arithmetical average of collected spreads. In addition to other quality control mechanisms the highest and lowest spreads (usually top and bottom quartile) are excluded from the calculation as shown in the table below.

Number of Contributions	Upper Quartile Discards	Lower Quartile Discards	Number Used in Composite
1	0	0	No Composite Calculated
3	1	1	1
4	1	1	2
5	1	1	3
7	1	1	5
8	2	2	4
11	2	2	7
12	3	3	6
16	4	4	8

Markit also calculates theoretical index spreads based on the contributions received for the underlying index components. Following is the methodology used for calculation:

- Using the Markit Composite credit curve and recovery rate for each of the index constituents, the survival probability of each constituent at each coupon payment date are calculated
- The Present Value (PV) of each index constituent is calculated using the trade details of the index (as described below)
- The PV of the index (Weighted Average of the PVs of the constituents) and the accrued interest on the index (Weighted Average of the accrued of the index constituents) are calculated.
- Theoretical Price of the index is calculated as 1+PV-Accrued
- The Index Theoretical Spread is solved as the flat curve that gives the index PV using the index recovery rate assumption

The Present Value (PV) of each index constituent can be calculated using one of the two following methods:

- A simplified model using risky duration only for each credit in the index generates a decent approximation. This is covered in more detail below.
- The more accurate and complex way is to use the hazard rate model for each underlying components of the index. It is not a trivial exercise and is outside the scope of this document, but will generate a more accurate value, as it allows for curvature in the credit spread curve. Details of this method is available on www.cdsmodel.com

For small differences in fixed and current coupon the two valuation methods will have similar results. The hazard rate model will give better results for large movements in the spread.

In the simple valuation methodology, the risky duration of the credit is multiplied by the difference between the current spread of the credit and the coupon of the index. This gives the PV on each component.

For example, if a credit is trading at 200 bps, with a risky duration of 3.75 years, and. the index coupon is 150 bps, then the PV of the constituent is 3.75*50/10,000 = 0.01875.

The index will trade away from the intrinsic / theoretical value calculated above, as it is a tradable index, and market supply and demand ultimately dictates where the index trades. However the intrinsic value provides a benchmark. The traded and intrinsic values are both available in Markit's end-of-day data services.

Credit Events

Credit Events result in the triggering of the CDS / LCDS single name and index contracts. As a consequence a payout occurs from the seller of protection on the index to the buyer of protection. The list of possible Credit Events are highlighted in the tables above and defined in Appendix 4 (Dictionary).

Following the implementation of the Big Bang and Small Bang in April and July 2009 respectively for the CDS markets, the ISDA Determinations Committee (DC) for the respective region decides whether a Credit Event has occurred and whether an auction will be held. More details on the process are available in Markit's "The CDS Big Bang Research Report" and "The CDS Small Bang Research Report" published on https://source.markit.com.

LCDS and LCDS index trades are not covered by the Big or the Small Bang.

Following a Credit Event in a constituent of the CDS / LCDS index, a new version of the index is published which assigns a zero percent weight on the relevant entity. The notional amount on the index trade is reduced by the weight of the name in the index. Assuming 100 names in the index and one default, the new version of the index will contain 99 names and have a revised notional of $9.9 million rather than $10 million.

CDS / LCDS trades can either be cash settled or physically settled following a Credit Event. Cash Settlement is the default settlement mechanism for all CDS trades following the implementation of the Big Bang and Small Bang. Cash Settlement is conducted by setting the recovery price in an auction, and the compensation received by the protection buyer is based on the final agreed auction price.

Credit Event Auctions have been developed over recent years for the unsecured market and have more recently been used in the senior secured market too. The recovery price is used across the whole market to settle trades, ensuring all contracts are settled at the same price. A complete Credit Event Auction Guide is available at

http://www.markit.com/en/products/data/indices/credit-and-loan-indices/index-annexes/primers.page?

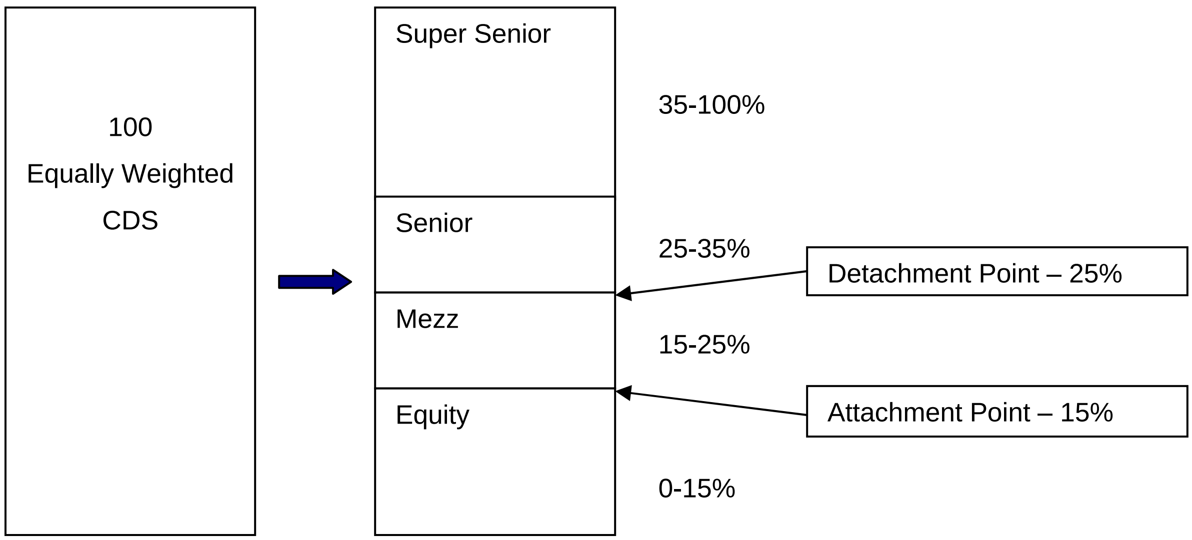
Assuming a recovery of 70 cents on the dollar, all protection buyers are compensated 30 cents in the dollar on the defaulted name. Assuming that each entity has a 1% weighting in the index, they are compensated 1% * 0.3 multiplied by the notional of the trade. For a $10m trade, this equals $30,000.
Markit and Creditex administer the auction and publish the results of each step of the process on www.creditfixings.com.

An alternative to Cash Settlement is Physical Settlement. In a Physical Settlement the protection buyer delivers the defaulted debt and receives par for it. The protection seller who takes delivery of the debt is left holding the defaulted asset. For a constituent of the index, the settlement is with respect to the portion of the index made up of the defaulted reference entity.

Physical Settlement has been the traditional method of settlement, but runs into problems when the notional of the outstanding debt is less than the CDS/LCDS outstanding. In addition, all counterparties are not able to take receipt of the debt. For an index, where the notional exposure in many trades for an actual credit will be small, and investors typically do not own the loan or bond on the credit event date, Cash Settlement is a better choice. The mechanics of Cash Settlement are simpler, faster, and more operationally efficient than Physical Settlement, where an actual loan/bond trade takes place.

Section 4 – Tranches

Some of the credit indices are also available in a tranched format, which allows investors to gain exposure on a particular portion of the index loss distribution. Tranches are defined by attachment and detachment points. Defaults affect the tranches according to the seniority of the tranche in the capital structure. Example of the CDX.NA.HY tranches:



Tranche Mechanics: The protection buyer of a tranche makes quarterly coupon payments to the protection seller and receives a payment in case there is a credit event in the underlying portfolio. Upfront payments are made at initiation and close of the trade to reflect the change in price. Coupon payments (500bps or 100bps per annum) are made until the notional amount of the tranche gets fully written down due to a series of credit events or until maturity whichever is earlier. Payments are made by the protection seller as long as the losses are greater than the attachment point and less than the detachment point for that tranche. Once the total loss reaches the detachment point, that tranche notional is fully written down. The premium payments are made on the reduced notional after each credit event.

Example:

An index has 100 equal weighted names, and has the following tranches: 0-15, 15-25, 25-35, 35-100 (in this case the 15-25 tranche has an attachment point of 15 and detachment point of 25). Investor B bought protection on the 0-15% tranche with a notional of $10 million.

One name defaults – Recovery is set at 65% (35% Loss Given Default – LGD). The payout from the protection seller is:

(Notional * LGD * Weighting) / Tranche Size

Or $233,333 to Investor B.

The 0-15% tranche is adjusted for the reduced notional (0.35 based on LGD) and 14.65% of the notional remains. The new detachment point has to be adjusted for the number of remaining names in the index, using a factor of 0.99 (the 0-15 tranche for new trades now becomes a 0-14.80 tranche). The original principal of the other tranches is unaffected but now has a smaller cushion protecting them against further losses, except that of the super senior tranche which notional is adjusted for the recovery. The detachment point doesn't change, but the notional is adjusted for the recovery rate. The loss goes to the equity tranche, the recovery to the super senior.

Tranche Accruals: After June 22nd 09, tranches mimic indices with an upfront at the trade date, the seller paying the buyer the accrued up to trade date, and the buyer paying full coupon at next payment date. So no matter when a trade is entered, the coupon legs always accrue from the same date and make unwinds, transfers and collapses very easy.

Tranche following a Credit Event:

Like Indices, the new version (ex-defaulted entity) starts trading after the credit event auction Example: Credit Event of Quebecor

-Consider a 100 name HY index (version 1).

-After the credit event, tranches for version 2 (ex-Quebecor) continue to be quoted in standard AP and DP. i.e. 0-10,10-15,15-25, 25-35 and 35-100. However the actual AP and DP will be different.

- Auction Recovery rate of Quebecor is 41.25%. The new underlying index is the 99 name index (version2 - ex Quebecor).

- This implies a loss of [1/100 * (1-41.25%)] = 0.5875% on the 100 name index. This loss is fully absorbed by the equity tranche and so the new detachment point for equity tranche will be [10% - (1/100 * 58.75%)] = 9.4125%. Since the underlying index now has 99 names, the actual detachment point will be (9.4125*100/99 = 9.507576%).

- Tranche widths will change for remaining tranches. For example, the tranche width of 10-15% will be (5*100/99 = 5.050505%), width for 15-25% and 25%-35% tranches will be (10 * 100/99 = 10.101010%). So DP for 10-15% tranche would be (9.507576% + 5.050505% = 14.55808%).

- A $10 mn notional on the 0-10 tranche corresponds to an actual notional of 10mn - [(1/100)* 10mn*58.75%*(100/10)] = $9.4125 mn on the 0-9.507576 tranche. So the underlying index notional is (9.4125mn /9.507576%=99 mn)

- For the super senior tranche, both the AP and the notional is reduced. The notional is reduced, because the recovered amount on the defaulted entity can no longer be lost. Notional for senior tranches are reduced by the recovery rate. The equity tranche is reduced by 100-recovery.

Hence, the new attachment, detachment points and actual notional will be as follows:

Quoted AP	Quoted DP	Actual AP	Actual DP	Quoted Notional	Actual Notional
0	10	0	9.507575758	$10.00	$9.41
10	15	9.507575758	14.55808081	$5.00	$5.00
15	25	14.55808081	24.65909091	$10.00	$10.00
25	35	24.65909091	34.76010101	$10.00	$10.00
35	100	34.76010101	100	$65.00	$64.59
				Total =100	Total = 99

Markit offers the most comprehensive pricing service for on-the-run and off-the-run tranches, providing bid, ask, and mid upfronts and spreads, as well as base correlations.

Additional information is available in Appendix 3.

Conclusion

Credit indices are widely used around the world. It is therefore key to understand the basic mechanics and characteristics of each index and their differences. We have attempted to highlight each index, but if you need more in-depth information, please contact the following people:

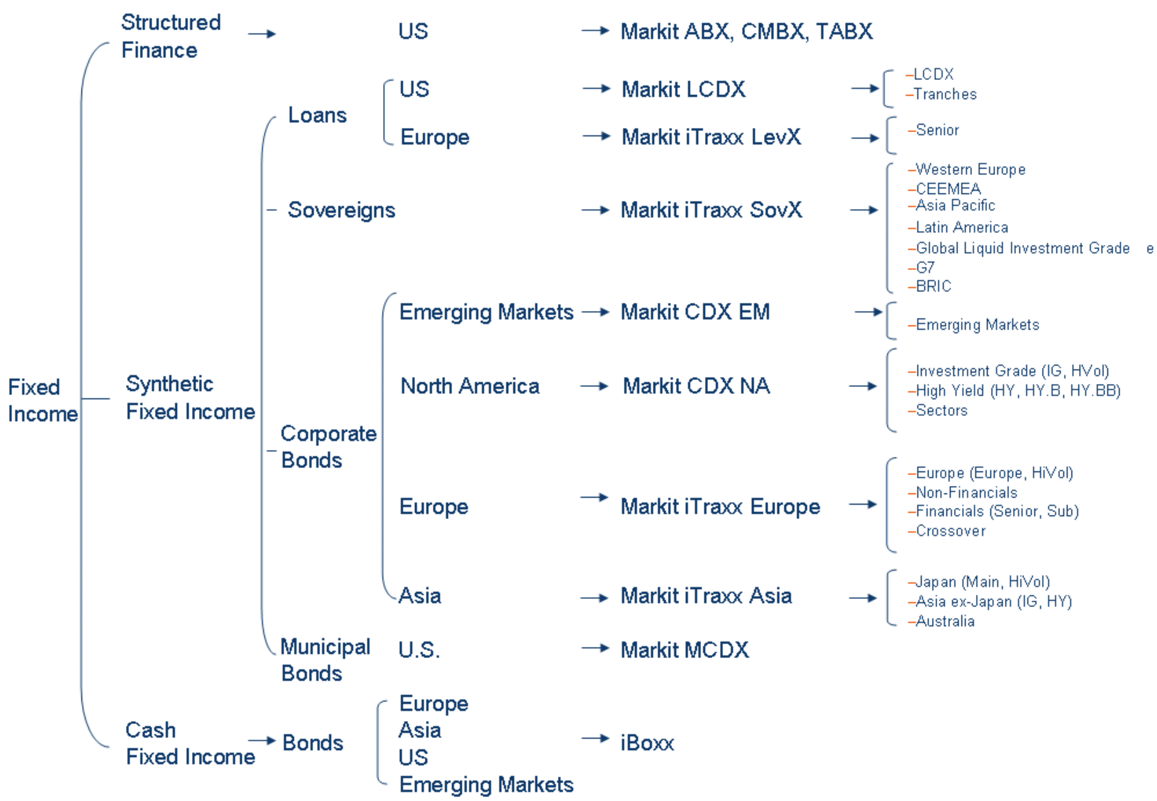
U.S. Credit Indices	Deepak Agnani Head of US Credit Indices +1 212 205 1248 deepak.agnani@markit.com
	Shahzeb Rao Vice President +1 646 257 2719 shahzeb.rao@markit.com
European/ Asian Credit Indices	Tobias Sproehnle, CFA Head European & Asian Credit Indices +44 (0)20 7260 2320 tobias.sproehnle@markit.com
	Frans Scheepers, CFA Vice President +44 (0)20 7260 2429 frans.scheepers@markit.com
Global Cash Bond Indices	Randolf Tantzscher Director +44 (0)20 7260 2136 randolf.tantzscher@markit.com

or go to www.markit.com.

Appendix 1: Roadmap to Credit Indices

Credit and Loan Indices - Markit CDX, iTraxx, SovX, LCDX, LevX, and MCDX - provide the market standards for investing, trading and hedging in the credit markets.

Chart: Markit Credit and Loan Indices overview



Product Descriptions

Markit iTraxx

Markit iTraxx are the standard European and Asian tradable credit default swap family of indices. The rules-based Markit iTraxx indices are comprised of the most liquid names in the European and Asian markets. The selection methodology ensures that the indices are replicable and represent the most liquid, traded part of the market. Markit iTraxx indices are easy and efficient to trade - investors can express their bullish or bearish sentiments on credit as an asset class, and portfolio managers can manage their credit exposures actively.

The benchmark Markit iTraxx Europe index comprises 125 equally-weighted European names. A HiVol index consisting of the 30 widest spread non-financial names and three sector indices are also published. The Markit iTraxx Crossover index comprises the 40 most liquid sub-investment grade entities.

The Markit iTraxx Europe indices trade 3, 5, 7 and 10-year maturities and a new series is determined by dealer liquidity poll every 6 months. Markit calculates the official mid-day (11am GMT) and end-of-day (4pm GMT) levels for the Markit iTraxx Europe suite of Indices on a daily basis.

The Markit iTraxx Asia Pacific indices comprise two Markit Asia ex-Japan indices (a 50 equally-weighted investment grade and a 20 equally-weighted high yield CDS index of Asian entities), a Markit iTraxx Australia index (25 equally-weighted Australian entities), and the iTraxx Japan index (50 equally-weighted CDS of Japanese entities).

The Markit iTraxx Asia Pacific indices typically trade on a 5-year maturity and a new series is determined by dealer liquidity poll every 6 months. Markit calculates the official end-of-day levels for the Markit iTraxx Asia Pacific suite of Indices on a daily basis.

Markit iTraxx SovX

The Markit iTraxx SovX indices are a family of sovereign CDS indices covering countries across the globe. These indices provide investors with an efficient, standardized risk barometer and tools to gain or hedge exposure to this asset class on a diversified basis.

The indices in the Markit iTraxx SovX family are the Markit iTraxx SovX Western Europe Index (comprising 15 names from the Eurozone region plus Denmark, Norway, Sweden and United Kingdom that trade on Western European documentation), the Markit iTraxx SovX CEEMEA Index (comprising 15 names in the Central & Eastern Europe, Middle East and African countries that trade on Emerging Markets documentation), the Markit iTraxx SovX Asia Pacific Index (comprising 10 names from the Asia and Oceania regions), the Markit SovX Latin America Index (comprising 8 entities from the Latin American universe), the Markit iTraxx SovX Global Liquid Investment Grade Index (comprising the most liquid high grade sovereign entities), the Markit iTraxx SovX G7 Index (comprising entities from the G7 universe) and the Markit iTraxx BRIC Index (comprising the most liquid BRIC entities).,All constituents are equally weighted in all the indices except the Markit iTraxx SovX CEEMEA index.

Markit iTraxx LevX

The Markit iTraxx LevX indices are the first European indices on Leveraged Loans CDS. They are constructed from the universe of European corporates with leveraged loan exposures. The Markit iTraxx LevX Senior Index comprises the most liquid first lien credit agreements traded in the European Leveraged Loan CDS market.

	Index	Entities (1)	Coupon (bps)	Recovery Rates (%)	Roll Dates	Maturity in years (2)	Underlying
iTraxx Europe	Europe	125	100	40	3/20 – 9/20	3, 5, 7, 10	Top 125 single name CDS contract by volume
	Non Financials	100	100	40	3/20 – 9/20	5, 10	
	Senior Financials	25	100	40	3/20 – 9/20	5, 10	
	Sub Financials	25	100	20	3/20 – 9/20	5, 10	
	Crossover	40	500	40	3/20 – 9/20	3, 5, 7, 10	Sub-investment grade reference entities
	High Volatility	30	100	40	3/20 – 9/20	3, 5, 7, 10	Top 30 highest spread names from iTraxx Europe
iTraxx Asia	Japan	50	100	35	3/20 – 9/20	5	
	Asia ex-Japan IG	50	100	40	3/20 – 9/20	5	
	Australia	25	100	40	3/20 – 9/20	5	
	Asia ex-Japan HY	20	500	25	3/20 – 9/20	5	
iTraxx SovX	Western Europe	15	100	40	3/20 – 9/20	5, 10	Top 15 sovereign entities by liquidity that trade on Western European documentation
	CEEMEA	15	100	25	3/20 – 9/20	5, 10	Top 15 sovereign entities by liquidity that trade on Emerging Market documentation
	Asia Pacific	10	100	40	3/20 – 9/20	5, 10	Top 10 sovereign entities by liquidity in the Asia and Oceania regions
	Latin America	8	100	25	3/20 – 9/20	5, 10	Top 8 sovereign entities by liquidity in the Latin America region
	Global Liquid IG	11-27	100	40	3/20 – 9/20	5, 10	Most liquid high grade global sovereign entities
	G7	Upto 7	100	40	3/20 – 9/20	5, 10	Most liquid industrialized countries
	BRIC	Upto 4	100	40	3/20 – 9/20	5, 10	Most liquid BRIC countries
iTraxx LevX	LevX Senior	40	500	40	3/20 – 9/20	5	European First Lien Syndicated Loans

(1) All indices are equally weighted except the Markit iTraxx SovX CEEMEA index
(2) Exact maturity is 3 months past the years after anniversary (coinciding with coupon payment dates and IMM roll dates of 20 Mar, 20 Jun, 20 Sep, 20 Dec)

Markit CDX

The Markit CDX indices are a family of indices covering multiple sectors. The main indices are: Markit CDX North American Investment Grade (125 names), Markit CDX North American Investment Grade High Volatility (30 names from CDX IG), Markit CDX North American High Yield (100 names), Markit CDX North American High Yield High Beta (30 names), North American Emerging Markets (14 names), and North American Emerging Markets Diversified (40 names). The Markit CDX indices roll semi-annually in March and September.

Markit LCDX

Markit LCDX is a tradable index with 100 equally-weighted underlying single-name loan-only credit default swaps (LCDS). The default swaps each reference an entity whose 1st lien loans that trade in the secondary leveraged loan market and listed on the Markit Syndicated Secured List. The Markit LCDX index rolls semi-annually in April and October.

Markit MCDX

Markit MCDX index comprises of 50 CDS contracts referencing municipal issuers as the Reference Entity. The Markit MCDX index rolls semi-annually in April and October.

	Index	# Entities (1)	Coupon (bps)	Recovery Rates (%)	Roll Dates	Maturity in years (2)	Underlying	Sub-Indices
LCDX	LCDX	100	250	70	4/3 – 10/3	3, 5	North American First Lien Senior Secured Loans	
CDX	IG	125	100	40	3/20 – 9/20	1, 2, 3, 5, 7, 10	Investment Grade	HVol – 30 names in IG with High Volatility Sectors
	HY	100	500	30	3/27 – 9/27	5	High Yield	HY.B, HY.BB, HB
	XO	35	340	40	3/20 – 9/20	3, 5, 7, 10	Cross-Over (7B or 6B) (3)	
	EM	14 - can vary	500	25	3/20 – 9/20	5	Emerging Markets (Sovereign)	
	EM Div	40	100	25	3/20 – 9/20	5	Emerging Markets Diversified (Sovereign and Corporate)	
MCDX	MCDX	50 credits	100	80	4/3 – 10/3	3, 5, 10	U.S. Municipal Bonds	

(1) All indices are equally weighted – Except for EM, which is decided by poll
(2) Exact maturity is 3 months past the years after anniversary (coinciding with coupon payment dates and IMM roll dates of 20 Mar, 20 Jun, 20 Sep, 20 Dec)
(3) 7B - a rating in the BBB/Baa rating category by one of S&P, Moody's or Fitch and in the BB/Ba rating category by the other two
6B - a rating in the BB/Ba rating category by S&P, Moody's and Fitch

Appendix 2: Index Roll Timeline

Markit CDX.NA.IG

T-11

A list specifying possible constituents and their assigned sectors is sent to Eligible IG Members

T- 9

A provisional list of additions and removals for the new index is circulated to Eligible IG Members and published on the website

T- 8

A dealer call is held to address any concerns about the provisional list. Any changes to the provisional list are published after end of day

T- 6

Selection completed of 30 names to be part of HVOL

T- 5

Markit publishes constituents of HVOL and the composition of sector sub-indices

T- 3

The fixed rate for the indices is determined and published

T- 2

Markit publishes the draft annex

T- 1

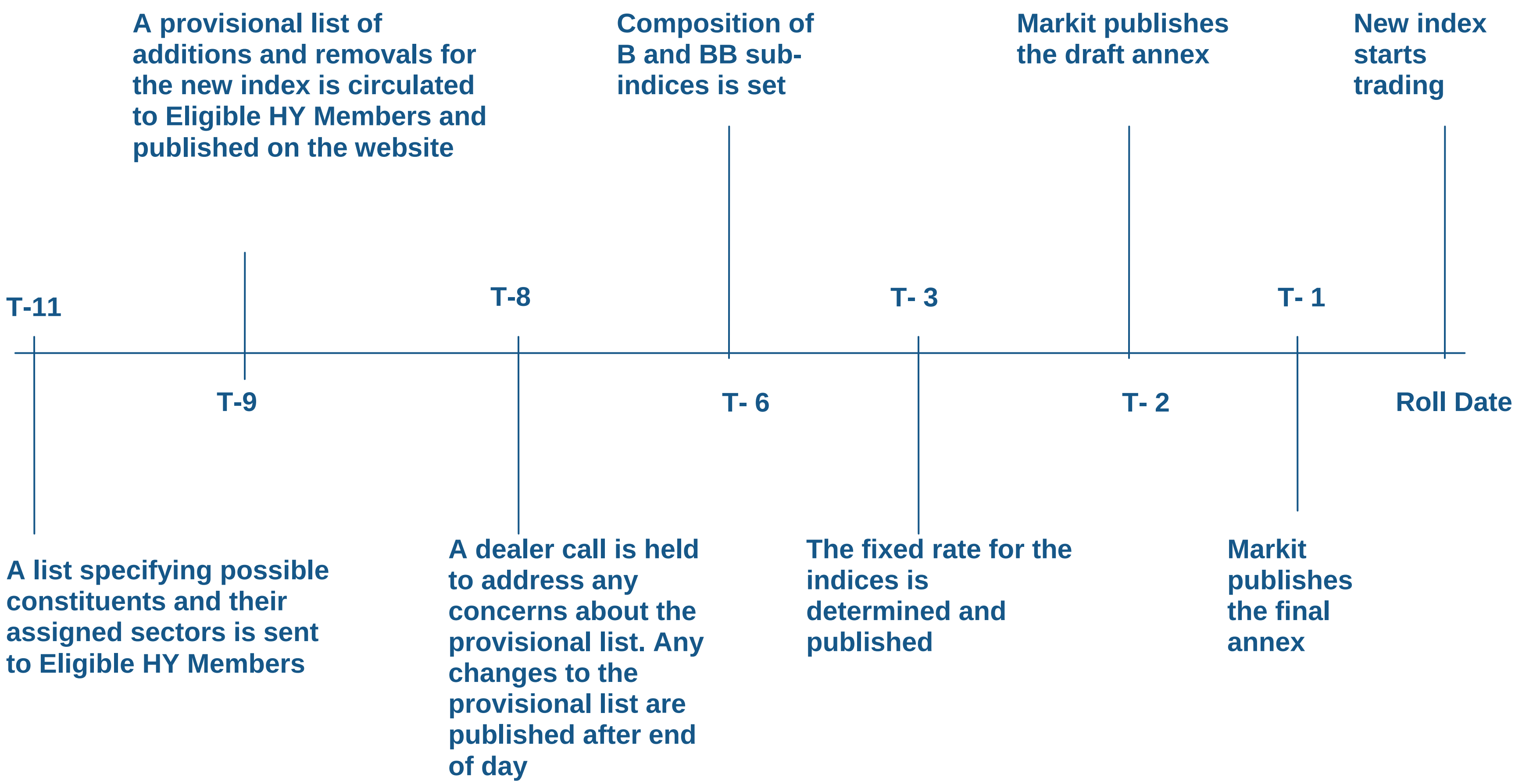
Markit publishes the final annex

Roll Date

New index starts trading

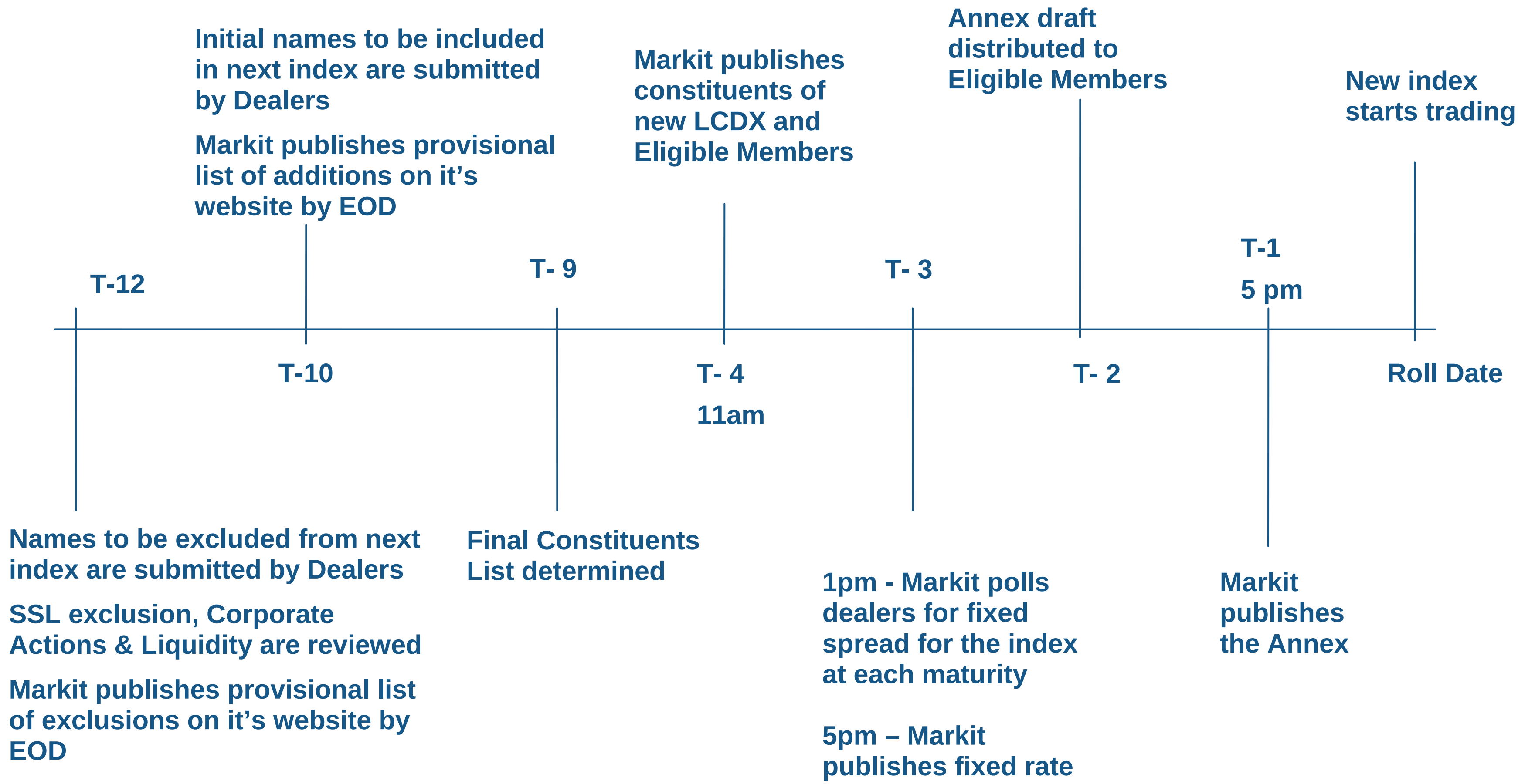
Appendix 2: Index Roll Timeline

Markit CDX.NA.HY



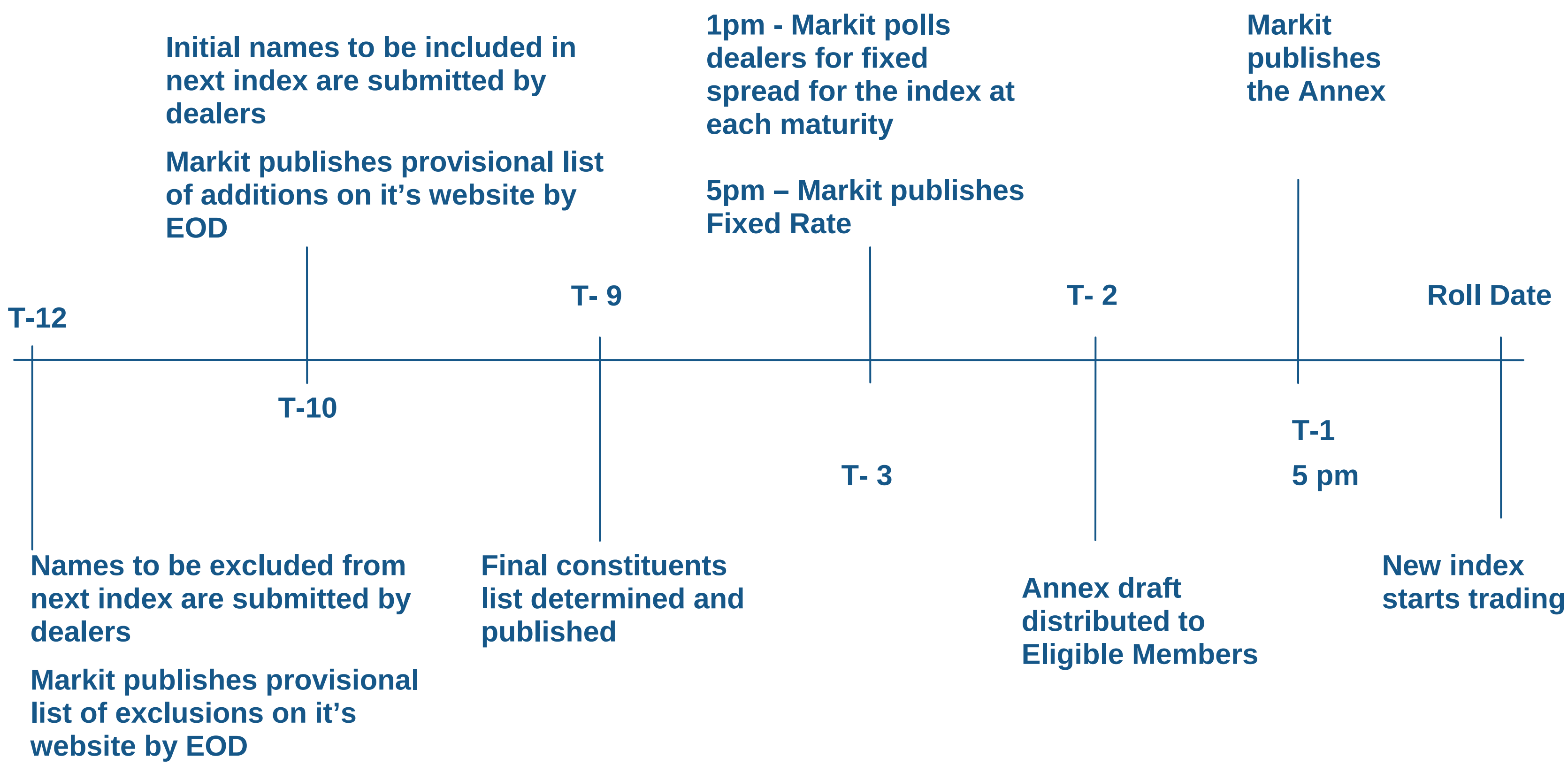
Appendix 2: Index Roll Timeline

Markit LCDX



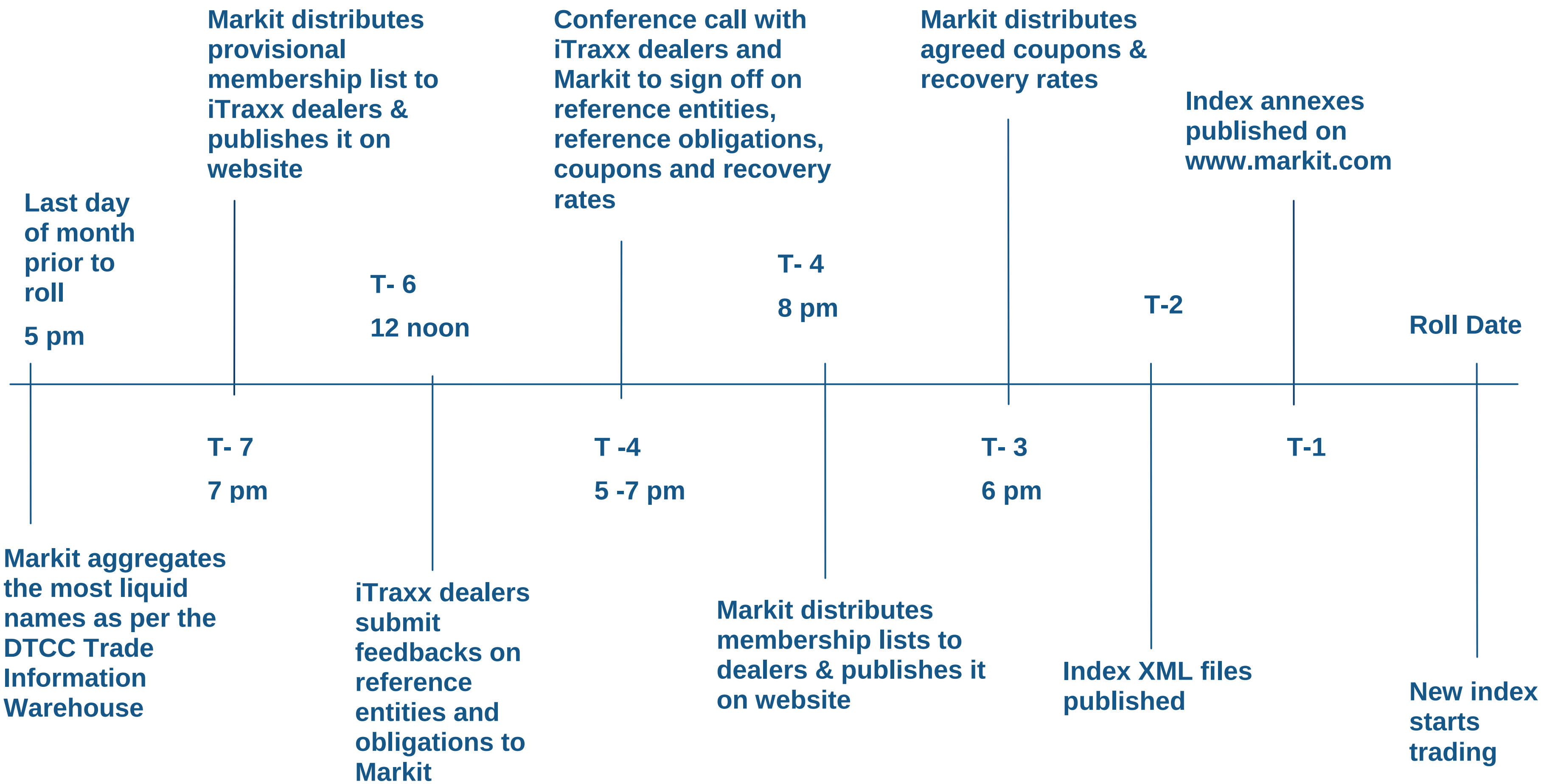
Appendix 2: Index Roll Timeline

Markit MCDX



Appendix 2: Index Roll Timeline

Markit iTraxx Europe and Crossover



Appendix 2: Index Roll Timeline

Markit iTraxx LevX

Last day of month prior to roll

5 pm

iTraxx dealers submit list of Reference Obligations (ranked by LCDS trading volume) to Markit (Reference Obligations drawn from Markit's RED LCDS)

T- 7

8 pm

Markit distributes provisional membership list to iTraxx dealers & publishes it on website

T- 6

12 noon

iTraxx dealers submit feedbacks on reference entities and obligations to Markit

T- 4

2 pm

Conference call with iTraxx LevX dealers and Markit to decide reference entities, reference obligations, coupons and recovery rates

T- 2

2 pm

Markit distributes membership lists to dealers & publishes it on website

T-1

Index annexes published on www.markit.com

Roll Date

New index starts trading

Appendix 3: Roadmap to Tranches

Index Tranches Availability

Tranches are available for the following indices:

Index Name	Tranches
CDX.NA.HY	0-10, 10-15, 15-25, 25-35, 35-100
CDX.NA.IG	0-3, 3-7, 7-15, 15-100
iTraxx Europe	0-3, 3-6, 6-9, 9-12, 12-22, 22-100
iTraxx Europe XO	0-10, 10-15, 15-25, 25-35, 35-100
iTraxx Japan	0-3, 3-6, 6-9, 9-12, 12-22
iTraxx Asia ex-Japan	0-3, 3-6, 6-9, 9-12, 12-22
iTraxx Australia	0-3, 3-6, 6-9, 9-12, 12-22
LCDX	0-5, 5-8, 8-12, 12-15, 15-100

A detailed description of tranches for LCDX can be found on

http://www.markit.com/assets/en/docs/products/data/indices/credit-index-annexes/LCDX_Tranche_Presentation.pdf

Standard Tranche Coupons

Markit CDX.HY – Starting with Series 12 all tranches trade with upfront + 500 bps running coupon. Prior to Series 12, the bottom two tranches trade upfront with no running coupons (0-10, 10-15), the next two tranches trade with upfront and a 500 coupon (15-25 25-35), and the super senior tranche trades in running spreads.

Markit CDX.IG – Starting with Series 15, 4 tranches will be trading instead of 5 with the maturities of 3, 5, and 7 years, The coupon for 0-3 tranche will be upfront + 500bps, 3-7 and 7-10 tranche will trade on a running coupon of 100bps + upfront payment and 15-100 + upfront tranche will trade on a running coupon of 25bps. Series 12 all tranches trade with an upfront + 100 running coupon. Prior to Series 12, the bottom three tranches traded upfront + 500 running coupon, the next three in upfront + 100 bps running coupon.

Markit iTraxx Europe – The bottom two tranches (0-3, 3-6) trade upfront + 500 bps running coupon, the next tranche (6-9) trades upfront + 300 bps running coupon, the next two tranches (9-12, 12-22) trades upfront + 100 bps running coupon while the 22-100 tranche trades with upfront + 25 bps running coupon, for all except Series 12. For Series 12 all tranches trade with an upfront + 100 running coupon.

Markit LCDX – Starting with series 12 all tranches are traded in price + 500 bps running coupon. For previous series the bottom two tranches are quoted in price and no running spreads, and the other tranches are quoted in price and a 500 coupon.

Appendix 4: Credit Derivatives Glossary

ABCDS – A CDS where the underlying is an Asset Backed Security.

Asset Swap Spread – An asset swap involves a swap of a fixed rate in return for a floating rate. The fixed rate is derived from an asset. The floating rate is composed of a spread over LIBOR (or another floating benchmark). The asset swap spread (gross spread) is derived by valuing a bond's cash flows via the swap curve's implied zero rates. This gross spread is the basis point amount added to the swap curve, which causes a bond's computed value to equal the market price of the bond. It is comparable to a CDS spread in that it is interest rate insensitive.

Basel III – The third and latest installment of global regulatory standards on bank capital adequacy and liquidity agreed by the members of the Basel Committee on Banking Supervision developed in response to the deficiencies in financial regulation revealed by the financial crisis. Basel III strengthens bank capital requirements and introduces new regulatory requirements on bank liquidity and bank leverage.

Basis – In finance, the *basis* represents the difference between two instruments. In the world of credit derivatives, the basis may refer to the difference between the CDS and the reference obligation (calculated as the Par Spread minus the bond's Asset Swap Spread or Z-spread). Other potential basis metrics are:

- *Restructuring basis*: the difference in the cost of protection between a contract trading with or without restructuring (mostly prevalent in North America).
- *Quanto basis*: the difference in the cost of protection for the same entity trading in different currencies (applies principally to sovereign credits).
- *Tier basis*: the difference between the cost of protection for different tiers of debt for the same entity.

Basis Point – 1/100th of 1%. 100 basis points = 1%. A common term in fixed income and credit derivative markets.

Basket CDS – A CDS where a group of reference entities are specified in one contract. There are several types of basket CDS including first or Nth-to-default swaps (where settlement is triggered when the first or Nth entity defaults).

Big Bang Protocol – On April 8 2009, the Big Bang Protocol went into effect, hardwiring the auction mechanism and creating Determinations Committees (DC) with the responsibility to declare whether a credit or succession event has occurred. The Protocol also introduced the concept of rolling effective dates with "lookback" periods defining credit event and succession event protection (T-60 days for credit events, and T- 90 days for succession events). Simultaneously, with the global contract changes, North American corporate single names started trading with fixed coupons (50 or 100 bp) and a full first accrual period.

Calculation Agent – The party responsible for determining when a credit event or succession event has occurred, and for calculating the amount of payment required by the Protection Seller.

CDS Spread – Also called a *premium*. The amount paid by the Protection Buyer to the Protection Seller, typically denominated in basis points and paid quarterly. For example, if the spread for Acme Inc. is 200 basis points, the Protection Buyer will pay the Protection Seller 200 basis points multiplied by the notional of the trade annually (typically paid quarterly, on an 'actual number of days per period/360' basis).

Composite Spread – Refers to the spread of a single name or an index derived by aggregating all the spreads individually submitted by Markit's contributors after deleting the outliers.

Composite Price – Refers to the price for price-based indices (CDX.NA.HY, CDX EM, LCDX, LevX) derived by aggregating all the prices individually submitted by Markit's contributors after deleting the outliers.

Conventional Spreads – These spreads represent the translation of fixed coupon and upfront payment into a single number. Investment grade names are expected to be quoted using this convention as they may have either the 100 or the 500 bps coupon associated with them, depending on the dealer's preference.

Credit Default Swap (CDS) – A credit derivative transaction in which two parties enter into an agreement, whereby one party (the Protection Buyer) pays the other party (the Protection Seller) periodic payments for the specified life of the agreement. The Protection Seller makes no payment unless a credit event relating to a predetermined reference asset occurs. If such an event occurs, it triggers the Protection Seller's settlement obligation, which can be either cash or physical.

Credit Event Auction – Industry standard mechanism designed to ease the settlement of credit derivative trades following a credit event. The auction process determines the cash settlement price of a CDS, with the compensation received by the protection buyer based on the final agreed-upon auction price. Markit and Creditex have jointly acted as administrators of credit auctions since their inception in June 2005.

Credit Swaptions – **aka Credit Options** – Allow the investor to either buy protection (for payer swaptions) or sell protection (for receiver swaptions) at a pre-agreed strike for a single credit or an index. Payer Swaptions can be further classified as Knock-Outs or Non-Knock Outs depending on whether the option ceases to exist following a credit event ahead of the option maturity.

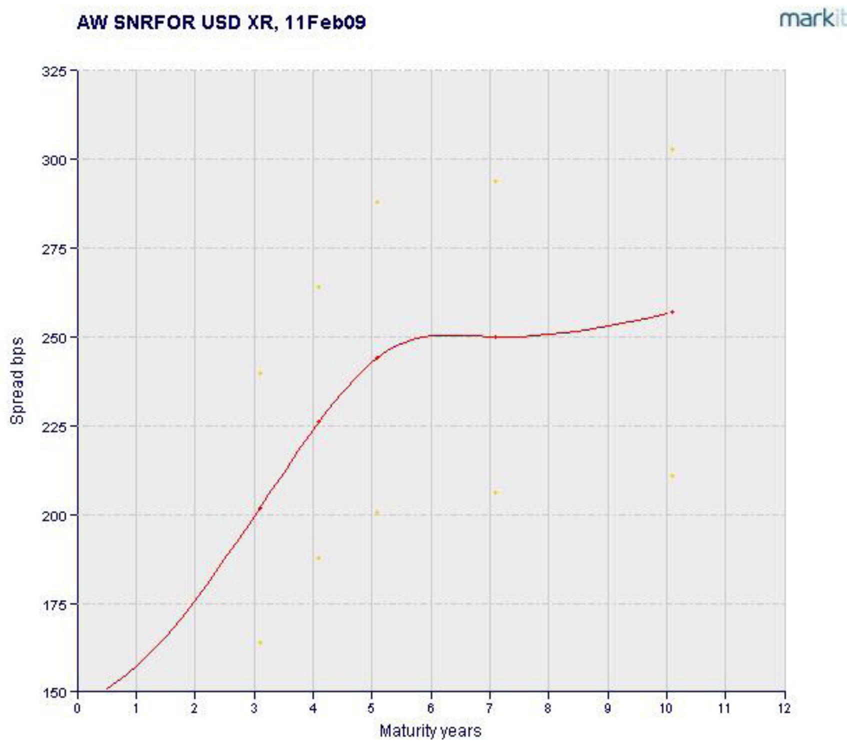
Coupons – **aka 'deal spread'** – Since the release of ISDA's protocols for the standardization of the credit markets, the most common coupon strikes have been 100bps and 500bps, though exceptions may apply (see inset below for details).

		Coupon Strikes			
	Implementation Date	25	100	500	1000
Asian Corporate & Sovereign CDS	December, 2009		☑	☑	
Australian Corporate & Sovereign CDS	September, 2009		☑	☑	
Eastern & Central European Corporate & Sovereign CDS	September, 2009		☑	☑	
European Corporate CDS	June, 2009	☑	☑	☑	☑
Japanese Corporate & Sovereign CDS	December, 2009	☑	☑	☑	
Latin American Corporate & Sovereign CDS	September, 2009		☑	☑	
Middle Eastern Corporate & Sovereign CDS	September, 2009		☑	☑	
New Zealand Corporate & Sovereign CDS	September, 2009		☑	☑	
North American Corporate & Sovereign CDS	April, 2009		☑	☑	
Western European Sovereign CDS	June, 2009	☑	☑		

Credit Event – This is the event-triggering settlement under the CDS contract. The DCs determine whether a credit event has occurred, and whether an auction should take place to settle trades. Since the original ISDA Agreement in 1999, six categories of Credit Events have been defined:

- *Bankruptcy* – although the ISDA 2003 Definitions refer to different ways a bankruptcy can occur, the
  experience has been that the reference entity has filed for relief under bankruptcy law (or equivalent law).
- *Failure to pay* – The reference entity fails to make interest or principal payments when due, after the grace period expires (if grace period is applicable in the trading documentation).
- *Debt restructuring* – The configuration of debt obligations is changed in such a way that the credit holder is unfavorably affected (maturity extended and/or coupon reduced). For more details, see the definition for *Restructuring Credit Event* further below.
- *Obligation default, obligation acceleration, and repudiation/moratorium* – The 2003 ISDA definitions define these three credit events, but they are very rare.

Credit Spread Curve – The curve display of the credit spread for a unique reference entity/tier/currency/doc-clause combination over different nodes or tenors. Find below a picture of the Allied Waste credit spread curve from Markit's CDS pricing service.



Derivative – A broad term describing financial instruments that "derive" their value from an underlying asset or benchmark. Many derivatives are designed to transfer some form of risk from one party to another. Included in this broad definition would be: Futures, Options (including caps and floors), Swaps (including CDS and interest rate swaps), Forwards and hybrids of the above.

DTCC – Depository Trust & Clearing Corporation provides clearance, settlement and information services for equities, corporate and municipal bonds, government and mortgage-backed securities and over-the-counter derivatives. The CDS matching and confirmation service provides automated, real-time matching and confirmation for standard single reference entity CDS (including North American, European, Asian corporate credits, and sovereign credits), as well as CDS indices.

DV01 – **aka Risky Duration** – The change in the mark-to-market value of a CDS trade for a 1bp parallel shift in CDS spreads. Though Risky Duration and Risky Annuity are often used interchangeably, the two measures yield changes that are very close only for CDS spreads trading at par. For larger spread movements away from par, this assumption becomes increasingly inaccurate.

FAS 157 – Financial accounting standards which define and establish a framework for measuring *fair value.* Fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at a specified date.

Fair value is measured using market-based inputs categorized in 3 levels of 'quality':

- *Level 1*: quoted prices in active markets.
- *Level 2*: quoted prices for similar assets or liabilities or corroborated by observable market data by correlation or other means.
- *Level 3*: unobservable inputs.

Gross Notional – Gross notional values are the sum of CDS contracts bought (or equivalently sold) for all Warehouse contracts in aggregate, by sector or for single reference entities displayed. Aggregate gross notional value and contract data provided are calculated on a per-trade basis.

Hazard Rate – the conditional probability of default in Period *n* for a particular entity given this entity has survived until the beginning of Period *n*. Hazard rates are 'backed out' of a CDS spread curve and 'bootstrapped' to create a term structure of Hazard rates. This term structure of Hazard rates is then translated into a term structure of Survival Probabilities and a term structure of Non-conditional Default Probabilities. The former is used to weigh the premium (or 'fee') leg of the CDS, while the latter is used to weigh the protection (or 'contingent') payment leg. The PV of each leg is discounted to find the MTM value of a CDS contract.

Implied Rating – A field used by Markit and calculated on a weekly basis by comparing the issuer's 5Y senior standard trading convention spread to the 5Y spreads of our sector curves and applying the rating of the logarithmically nearest rating curve specific to that sector**.**

Index Price – In standard quotation, CDX HY,CDX EM, LCDX, and Lev-X indices are quoted on a price basis.

Index Roll – Process which, for the Markit iTraxx and Markit CDX suite of indices, takes place twice a year in March and September to create a new index series. The previous index becomes off-the-run, and the new index is the new on-the- run series.

Index Spread – 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 'Converter' (https://source.markit.com) or can be approximated using the dollar value of 1 basis point (DV01) and multiplying that by the difference between the deal spread and the quoted spread.

Index Skew – Market participants refer, by convention, to the index skew as the difference between the price (or spread) of the Credit index traded in the market and its 'fair value' derived from the index constituents. It is also called the index basis.

There are several reasons why actual spreads may differ from fair value, e.g lower liquidity in single name spreads, differences in maturity between on-the-run single names and index contracts, and general credit market demand for protection selling and buying, among others.

ISDA – 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.

Jump-to-Default risk – The risk that a credit defaults suddenly before the market has had time to factor its increased default risk into current spreads.

LCDS – A CDS contract where the underlying instrument is a syndicated loan, senior secured in the capital structure.

LIBOR – London Interbank Offered Rate – An interest rate fixing in the interbank market, representing the rate at which highly-rated banks will lend to one another. Also widely used as a floating rate reference on interest rate and currency swaps, and floating rate notes. LIBOR is calculated daily for a variety of currencies including USD and GBP. The EUR equivalent is EURIBOR and the JPY equivalent is TIBOR.

Long Basis – aka ‘buying the basis’ – A trade that seeks to profit from a widening of the basis (becoming more positive), and can be executed by selling the bond and selling the CDS.

Long Credit – Refers to the position of the CDS Protection Seller who is exposed to the credit risk and who receives periodic payments from the Protection Buyer.

Markit CDX – Markit credit indices focused on the Americas. Investment Grade, High Yield, and Emerging Markets are the three major sub-indices.

Markit iTraxx – European and Asian CDS indices owned by Markit. The Markit iTraxx represents the most liquid part of the CDS market for Asia and Europe.

Markit iTraxx LevX – The Markit iTraxx LevX indices are based on European Loan credit derivatives - they are constructed from the universe of European corporates.

Markit iTraxx SovX – Markit iTraxx SovX Indices are a family of sovereign CDS indices covering countries across the globe. The indices have 5-year and 10-year maturities and the underlying currency is USD.

Markit LCDX – Markit LCDX is the North American benchmark for first lien leverage loans CDS

Markit MCDX – Markit MCDX index references U.S. municipal credits covering revenue and general obligations.

Markit RED™ – Markit’s Reference Entity Database. Markit RED is the industry standard identifier for reference entities and reference obligations in the credit derivative market.

Markit VolX – The Markit VolX indices are the benchmark family of indices that track the realized volatility in the European and North American credit derivatives markets.

MCDS – A CDS contract where the underlying is a municipality, and the reference obligation is either a Revenue Liability, a General Obligation Liability, a Moral Obligation Liability or a Full Faith and Credit Liability.

Negative Basis – Occurs when the ASW or Z-Spread of a bond is wider than the CDS spread.

Negative index skew – A bullish credit indicator, suggesting that there are more sellers of index protection, than buyers of single name protection.

Net Notional – The sum net protection bought by buyers (or equivalently net protection sold by net sellers). Assuming a recovery of 0, net notional positions generally represent the maximum possible net funds transfers between net sellers of protection and net buyers of protection that could be required upon the occurrence of a credit event relating to particular reference entities. Actual net fund transfers are dependent on the recovery rate for the underlying bonds or other debt instruments.

Notional Principal – The quantity of the underlying asset or benchmark to which the derivative contract applies.

Off-the-run / On-the-run – Markit iTraxx and CDX indices 'roll' every six months when a new series of the index is created with updated constituents. The previous series continues trading although liquidity is concentrated on the new series. The new series is referred to as being on-the-run, with previous series referred to as being off-the-run.

OTC – Over-The-Counter – Refers to trades negotiated and conducted directly between two parties. This contrasts with trades conducted on exchanges, where the trades are defined by the rules of the particular exchange. CDS are examples of an OTC-traded instrument.

Par Spread – The spread of a CDS contract that ensures the PV of the expected premium payments (fee leg) equal the PV of the expected default payment payments (contingent leg).

Positive Basis – Occurs when the CDS spread is trading wider than the ASW or Z-spread of the bond.

Positive index skew – A bearish credit indicator suggesting index protection buyers outweigh sellers of single name protection.

Present Value – An asset valuation method, which maps future cash flows from an asset and discounts the future cash flows by an appropriate discount rate.

Protection Buyer – This is the party to a CDS contract which pays a premium for protection in case a credit event occurs. The Protection Buyer can also speculate that the cost of protection will rise and profit from selling the CDS contract at a higher price than was paid.

Protection Seller – This is the party to a CDS contract receiving the premium payments, and who is exposed to the credit risk of the reference entity.

Quanto CDS – FX swaps embedded in CDS contracts - quoted on all the major sovereigns in addition to some single name corporate swaps and CDS indices. The buyers and sellers of the quanto swap take opposite views on the correlation between currency and credit risk

Recovery Rate – An estimate of percentage of par value that bondholders will receive after a credit event. CDS for investment grade bonds generally assume a 40% recovery rate when valuing CDS trades. However, CDS for lower rated bonds are more dynamic and often reflect lower estimated recovery rates.

Reference Entity – Refers to the legal entity that is the subject of a CDS contract. The reference entity can be the issuer or the guarantor of the debt.

Reference Obligation – The specific bond (debt obligation) that is referenced in the CDS contract.

Restructuring Credit Event – One of the types of credit events which trigger settlement under the CDS contract. Restructuring is a "soft" event, whereby the loss to the owner of the reference obligation is not obvious. In addition, Restructuring often retains a complex maturity structure, so that debt of different maturities may remain outstanding with significant differences in value. The following are the different types of Restructuring clauses:

- *Full Restructuring* (CR): This allows the Protection Buyer to deliver bonds of *any* maturity after restructuring of debt in *any* form occurs. This type of clause is more prevalent in Asia.
- *Modified Restructuring* (MR): limits deliverable obligations to bonds with maturities of less than 30 months after a credit event.
- *Modified Modified Restructuring (MM):* This is a "modified" version of the Modified Restructuring clause whereby deliverable obligations can mature up to 60 months (5 years) following the credit event. This type of clause if more prevalent in Europe.
- *No Restructuring* (XR): This option excludes restructuring altogether from the CDS contract, eliminating the possibility that the Protection Seller suffers a "soft" Credit Event that does not necessarily result in losses to the Protection Buyer. No-R protection typically trades cheaper than Mod-R protection. Following the implementation of SNAC, this clause is mainly traded in North America.

Risky PV01 – **aka Risky Annuity –** The sum of the discount factors used in CDS valuation weighed by their corresponding survival probabilities. The Risky PV01 or Annuity measures the present value of 1bp risky annuity received or paid until the occurrence of a credit event or the expiration of the contract.

Series – Term which identifies the series of a specific index, and its main characteristics. In September 2008, Markit rolled the Markit CDX IG index to series 11. Series 11 has a maturity of December 20, 2013, and fixed coupon of 150basis points. In March 2009, Markit will roll the Markit CDX IG index to series 12.

Settlement – What occurs in the case of a credit event. Settlement can be cash or physical delivery, depending on the terms of the contract. Traditionally, CDS specified physical delivery but in the last three years numerous auctions have been held to allow for cash settlement.

Short Basis – **aka 'selling the basis'** – a trade that seeks to profit from a tightening of the basis (becoming more negative), which can be executed by buying the bond and buying a CDS.

Short Credit – This is the credit risk position of the Protection Buyer, who sold the credit risk of a bond to the Protection Seller.

Small Bang Protocol – While the CDS Big Bang authorized the Determinations Committees (DC) to decide whether or not a Restructuring Event took place, the DC rules under the CDS Big Bang specifically prohibited them from authorizing auctions to settle trades for Restructuring Events – consequently, the CDS Small Bang (issued June 20, 2009) addressed the need to incorporate the auction settlement mechanism for Restructuring Events, whereby DCs are able to decide whether or not to hold auctions for specific Maturity Buckets and implement a "Use It or Lose It" date.

Simultaneously, since June 20th, 2009, standard European corporate entities started trading with fixed coupons of 25, 100, 500 and 1000, similar to North American corporate entities albeit with additional coupons.

SNAC (Standard North American Corporate Contract) – Defines trades based on the new CDS conventions, with full coupon, subject to the Big Bang Protocol (determination committee, auction hardwiring, lookback period).

STEC (Standard European Corporate Contract) – Defines trades based on the new CDS conventions, with full coupons, subject to the Small Bang Protocol which focuses on restructuring clauses.

Theoretical Spread (Price) – **aka 'Intrinsic Value' or 'Fair Spread'** – the spread of an index implied by the underlying index constituents with currency, doc clause, day counts, coupon, coupon frequency, and maturity identical to that of the index.

Tranches – Allow investors to gain exposure on a particular portion of the index loss distribution. Tranches are defined by attachment and detachment points. Defaults affect the tranches according to the seniority of the tranche in the capital structure. For example, the 5Y 3-6% tranche on a portfolio of 125 single names with a 40% recovery would protect the investor up to the sixth default – 1/125* (1-0.4)= 0.48% loss on one name. By the seventh default (0.48%*7= 3.36%), the investor is no longer protected and will incur principal loss. After the thirteenth default (0. 48% * 13 = 6.24%), the entire principal is lost and no further losses are incurred on this tranche.

Succession Event – An event such as a merger, consolidation, amalgamation, transfer of assets or liabilities, demerger, spin-off or other similar events where one entity succeeds to the obligations of another entity. Rules for succession events are defined in the 2003 ISDA definitions and the Determinations Committees review and determine such events and debt movement and respective impact on the CDS.

Probability of Survival – The probability of an entity not defaulting in period *n* and subsequent periods. These probabilities are modeled as a function of Hazard Rates and a term structure of survival probabilities is used to weigh the premium (or fee) leg when valuing a CDS transaction quantitatively.

Probability of Default – The probability that an entity defaults in a particular period.

Swap – An agreement between two parties to exchange future cash flows or credit risk.

Tenor – Refers to the duration of a CDS contract. Most CDS are written with 5 year terms, and this remains the most liquid and frequently quoted part of the credit curve; however other tenors, such as the 10 year, are becoming more common.

Tier – Refers to one of four levels of debt in the capital structure of the reference entities. Each tier represents a different level of seniority or preference in liquidation or bankruptcy. There will generally be different levels for CDS protection for each of the tiers.

- *JRSUBUT2* – Junior Subordinated or Upper Tier 2 Debt (Banks)
- *PREFT1* – Preference Shares, or Tier 1 Capital (Banks)
- *SECDOM* – Secured Debt (Corporate/Financial) or Domestic Currency Sovereign Debt (Government)
- *SNRFOR* – Senior Unsecured Debt (Corporate/Financial), Foreign Currency Sovereign Debt (Government)
- *SUBLT2* – Subordinated or Lower Tier 2 Debt (Banks)

Upfront – Refers to the initial (i.e. upfront) lump sum payment made when entering a CDS transaction. Upfront payments tend to apply to transactions where the credit quality of the entity referenced is poor – in other words, where the perceived risk of the entity defaulting is high. It ensures the Protection Seller receives a payment upon trade execution that reflects the riskiness of the contract.

Version – Each index series is identified by a version number. After an index rolls, the initial version will be one. To represent removal of constituents because of credit events and early termination (for LCDX), a new version of the index is published. For example Markit CDX HY 11 v1 was the version of the Markit CDX HY index launched at the roll of September 2008. After the removal of Tribune Company because of bankruptcy, a new version Markit CDX HY 11 v2 was published. After the removal of Nortel Networks Corporation, a new version was published, Markit CDX HY 11 v3.

Z-spread – The basis point value that must be added to the zero coupon curve, such that the security's discounted cashflows equal the security's market price. At its simplest, the zero-volatility spread measures the spread to Treasury spot (zero) rates all along the curve.

Appendix 5: Index Rules

Markit iTraxx Rules

Markit iTraxx Europe

The Markit iTraxx® Europe index comprises 125 investment grade rated European entities.

Liquidity List

Markit forms a Liquidity List based on the sum of weekly trading activity as measured in the DTCC TIW (Section IV) over the last six months preceding the last Friday of the month prior to the Roll Date. The list is ranked according to trading volumes, i.e. the entity with the highest trading volume is ranked #1.

Entities on the Liquidity List should satisfy the following criteria:

- Entities must demonstrate weekly trading activity over the last eight weeks preceding the last Friday of the month prior to the Roll Date as measured in the DTCC TIW in Section IV
- Entities must be incorporated in Europe, where 'Europe' means EU and EFTA member countries.
- Volumes for entities that fall under the same ticker, but trade separately in the CDS market, are summed to arrive at an overall volume for each ticker. The most liquid entity under the ticker qualifies for index membership.
- Financial Entities need to have liquidity in Subordinated (Lower Tier 2) CDS. Markit will use the Markit CDS Liquidity Report to determine liquidity in Subordinated CDS transactions. The Subordinated CDS transactions of the Financial Entities need to satisfy the following criteria in order for the relevant entity to be eligible for the iTraxx® Europe indices (with all averages to be taken over the past 6 months ending the last London Business Day of the month prior to the Roll Date):
  - Average Bid / Offer Spreads should not exceed 0.50%
  - Average number of quotes should be at least 25
  - Average number of dealers quoting should be at least 5
  - Average Liquidity Score needs to be 3 or better

Membership determination

- All entities must be rated investment grade by Fitch, Moody's or S&P. Entities with an Entity Rating of BBB-/Baa3/BBB- (Fitch/Moody's/S&P) with negative outlook or below are excluded.
- If it is confirmed that one entity has more than 50% of the voting rights of another entity and both trade under different tickers, then the most liquid entity qualifies for index membership.
- Affiliates of an entity included in the index, already guaranteed by that entity, are eliminated. Non-guaranteed wholly-owned subsidiaries of an entity are eligible.
- Each entity is assigned to its appropriate iTraxx® sector and is ranked within its sector, i.e. the entity with the highest liquidity is ranked #1.
- Index composition is initially set to be the same as the previous series. Ineligible entities (downgraded, defaulted, changed sector or merged) are excluded. Any entities in the top 75% of the number of entities in that sector not already in the index are added, e.g. in the Consumers sector, any entity in the top 22 by liquidity ranking, but not in the current index, is included, and the lowest ranking entity in that sector is eliminated. Entities ranked lower than 125% of the number of entities in the sector are removed and replaced by the next most liquid entity not yet in the index, e.g. if an entity in the previous series' Consumers index is ranked #40 in the new Consumers ranking, it is excluded. Entities ranked below 150 in the overall master list that includes all sectors, are removed and replaced by the most

liquid entity in that sector that is not yet in the index. If the replacement is less liquid than the entity to be dropped, no change is made.

- The final index comprises 125 entities and is constructed by selecting the highest ranking entities in each sector on the Liquidity List, subject to the following sector restrictions:
  - 30 Autos & Industrials
  - 30 Consumers
  - 20 Energy
  - 20 TMT
  - 25 Financials (separate Senior & Subordinated indices)

Markit iTraxx HiVol

The Markit iTraxx® HiVol index comprises 30 entities with the widest 5-year credit default swap spreads from the Markit iTraxx® Europe Non-Financials index. The average of 5-year mid-spreads, published by Markit, calculated over last 10 London Business Days of the month prior to roll date determine eligibility.

Markit iTraxx Crossover

The iTraxx® Crossover index comprises 50 European entities; this number may be changed from time to time at an index roll upon reasonable notice if warranted by market conditions.

Liquidity List

Markit forms a Liquidity List based on the sum of weekly trading activity as measured in the DTCC TIW (Section IV) over the last six months preceding the last Friday of the month prior to the Roll Date. The list is ranked according to trading volumes, i.e. the entity with the highest trading volume is ranked #1.

Entities on the Liquidity List should satisfy the following criteria:

- Entities must demonstrate weekly trading activity over the last eight weeks preceding the last Friday of the month prior to the Roll Date as measured in the DTCC TIW in Section IV
- Entities must be incorporated in Europe, where ‘Europe’ means EU and EFTA member countries.
- Volumes for entities that fall under the same ticker, but trade separately in the CDS market, are summed to arrive at an overall volume for each ticker. The most liquid entity under the ticker qualifies for index membership.

Membership determination

- Entities with an Entity Rating of BBB-/Baa3/BBB- (Fitch/Moody’s/S&P) with stable outlook or higher are excluded. Entities not rated by any of Fitch, Moody's or S&P are eligible.
- Only entities that have issued or guaranteed more than €100 million publicly traded debt securities (which shall be taken to exclude loans and equities) at close of business in London on the fifth London Business Day preceding the Roll Date in a currency that is deliverable into a European CDS contract will be included. For new issues of the relevant entities, the settlement date of the issue will be considered. Private placements will not be considered.
- If it is confirmed that one entity has more than 50% of the voting rights of another entity (and both trade under different tickers), then the most liquid entity qualifies for index membership.
- Affiliates of an entity included in the index, already guaranteed by that entity, are eliminated. Non-guaranteed wholly-owned subsidiaries of an entity are eligible.
- Financial entities (per the iTraxx® sector classification) are not eligible.

- An entity is eligible if it has an average spread at least twice the average spread of the constituents of the iTraxx® Non-Financial Index, as determined for the next index roll, with a maximum of 50% upfront plus 500 bps running spread. Average 5-year mid-spreads published by Markit for the last 10 London Business Days of the month prior to Roll Date determine eligibility (e.g. if the average spread of the entities in the iTraxx® Non-Financial Index effective 20 March was 40 bps over the last 10 London Business Days in February, then only those entities whose average spread over the last 10 London Business Days in February was 80 bps or higher qualify).
- The final portfolio comprises the 50 highest ranking entities on the Liquidity List.

Markit iTraxx Japan

The Markit iTraxx® Japan index comprises 50 investment grade Japanese entities.

Liquidity Poll

- Each market maker submits to Markit a list of the most liquid traded entities:
  - Trading volumes of each entity are aggregated by market makers
  - Trading volumes of the past six months are used
  - For bank names, both subordinated and senior volumes are combined
  - All internal transactions are excluded from the volume statistics, e.g. those with an internal prop desk
  - Markit aggregates the volume ranked lists from market makers to compute final liquidity ranking for each entity.

Membership determination

- The iTraxx® Japan main index comprises 50 investment grade rated Japanese entities. Fitch, Moody's, R&I, and S&P ratings are considered. If an entity is rated by two or more agencies, the highest rating is used.
- The top 50 entities with a Nikkei industry cap of 10 are selected from the volume ranked list to form iTraxx Japan.
- At the time of an index roll, index composition is initially set to be the same as the previous series. Existing constituents will be excluded from the new index if they now rank #76 or lower. They are replaced by the most liquid new entities. New entities ranked #25 or higher are included automatically, replacing the least liquid entities of the updated overall 50-name list.

Markit iTraxx Asia ex-Japan

The Markit iTraxx® Asia ex-Japan IG index comprises 50 investment grade entities, the iTraxx® Asia ex-Japan HY index comprises 20 non-investment grade entities.

Liquidity Poll

- Each market maker submits to Markit two lists for each of the Markit iTraxx Asia ex-Japan IG and HY indices -----Exclusion List and Inclusion List
- In the first stage, Markit requests Exclusion Lists corresponding to the IG and HY indices.
- Exclusion Lists comprise of the entities market makers would like to remove from the existing indices on the basis of trading volumes over the past 12 months.
- Markit aggregates all votes from the Exclusion Lists. All entities securing more than 50% of the votes from the market makers (among all market makers sending their lists to Markit), are excluded from the respective index.
- In addition, entities for which a rating change has occurred and no longer qualify for the respective index are removed.1
- In the second stage depending on the number of exclusions from the IG and HY indices, Markit requests dealers to submit Inclusion Lists for each of the indices.
- Inclusion Lists comprise of the entities market makers would like to include in the new series of the respective indices on the basis of trading volumes over the past 12 months.
- Markit aggregates all votes from the Inclusion Lists. All entities in this list are ranked according to the number of votes in descending order.
- Entities are selected from the sorted Inclusion Lists for membership in the new series of the index till the total number of names in the IG index and HY index are 50 and 20 respectively.

Membership determination

Markit iTraxx Asia ex-Japan IG index

- Markit aggregates the votes from Exclusion and Inclusion Lists of the market makers to compute a provisional membership list to be confirmed on the dealer roll call.
- All entities must be rated investment grade. Entities rated below BBB-/ Baa3 are excluded. Fitch, Moody's and S&P ratings are considered. If an entity is rated by two or more agencies, the lowest rating is considered.

Markit iTraxx Asia ex-Japan HY index

- Markit aggregates the votes from Exclusion and Inclusion Lists of the market makers to compute a provisional membership list to be confirmed on the dealer roll call.
- Entities rated BBB-/ Baa3 or higher are excluded. Fitch, Moody's and S&P ratings are considered. If an entity is rated by two or more agencies, the lowest rating is considered.

[1] *Please note that removal of an entity from one index due to rating change does not imply that it would enter another index unless market makers vote for it in the Inclusion Lists. For example, excluding an entity from the IG index due to rating downgrade does not automatically make it a member of the HY index. This entity needs to be in the Inclusion List for the HY index and ranked appropriately for inclusion in the HY index.*

Markit iTraxx Australia

The Markit iTraxx® Australia index comprises 25 investment grade rated entities.

Liquidity Poll

Each market maker submits to Markit a list of the most liquid traded entities based on the following criteria:

- Trading volumes of each entity are aggregated by market makers
- Trading volumes of the past 6 months are used
- For bank names, both subordinated and senior volumes are combined
- All internal transactions are excluded from the volume statistics, e.g. those with an internal prop desk

Membership determination

- All entities must be rated investment grade by Fitch, Moody's or S&P. This translates into a minimum rating of Baa3 from Moody's and BBB- from Fitch or S&P. If an entity is rated by two or more agencies, the lowest rating is used.
- Markit aggregates the volume ranked lists from market makers to compute final liquidity ranking for each entity. The top 25 most liquid entities are selected from the volume ranked list to comprise iTraxx Australia
- No more than 5 bank entities may be included in the index.

Markit iTraxx SovX Rules

Markit iTraxx SovX Western Europe Index

The Markit iTraxx SovX Western Europe is a tradable index composed of 15 equally weighted sovereign constituents from an 18 name universe of European countries that are traded on Western European documentation.

The constituents are the 15 countries with the largest sum of weekly trading activity (as measured in the DTCC Trade Information Warehouse) over the last six months preceding the last Friday of the month prior to the roll date. If there are names that have the same sum of net weekly trading activity, a dealer poll will be held to determine which entity will be included in the index. The 18 name universe comprises Eurozone countries that are traded on Western European documentation (Austria, Belgium, Cyprus, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Malta, Netherlands, Portugal and Spain) plus Denmark, Norway, Sweden and United Kingdom.

The list will be published on www.markit.com after selection. A new series will roll every 6 months. The index will be quoted in spread terms.

Markit iTraxx SovX CEEMEA Index

The Markit iTraxx SovX CEEMEA Index is a tradable index composed of the top 15 most liquid sovereign entities from Central & Eastern European, Middle Eastern and African countries that trade on Emerging Markets Documentation.

The constituents are 15 countries from the full universe of 26 CEEMEA countries comprising Abu Dhabi, Bahrain, Bulgaria, Croatia, Czech Republic, Dubai, Estonia, Hungary, Israel, Kazakhstan, Latvia, Lebanon, Lithuania, Morocco, Poland, Qatar, Romania, Russian Federation, Saudi Arabia, Serbia and Montenegro, Slovakia, Slovenia, South Africa, Tunisia, Turkey and Ukraine. The number of constituents is set at 15 but may be changed from time to time at an index roll upon reasonable notice.

The constituents of the index are decided using the following methodology:

- Markit sends to all Markit iTraxx SovX CEEMEA market makers the list of entities from the 26 name universe for which weekly trading activity data is available as measured in the DTCC Trade Information Warehouse over the last six months preceding the last Friday of the month prior to the roll date. The sum of weekly trading activity levels over the last six months preceding the last Friday of the month prior to the roll date is also sent.
- All dealers submit the 15 entities from this list which they would prefer to be in the index. Liquidity will be the main driving factor for the choices.
- The list of 15 entities that receive the maximum number of votes will be included in the index.
- In case of ties, further polling rounds will be conducted

The weights for the entities in the index are fixed using the following methodology:

- All Markit iTraxx SovX CEEMEA market makers submits to Markit a list of weights for the entities in the index
- For each entity, the initial weight is calculated as the median of the weight contributions from the dealers, rounded off to the closest whole numbers.
- If the Initial Weights sum to 100%, then these are the Final Weights of the constituents.
- If the Initial Weights for all the entities do not add up to 100%
  - Markit suggests few possible weighting schemes for the entities so that the weights add up to 100%.

- Dealers vote on their most preferred weights allocation.
- The weighting scheme which receives the maximum number of votes is the Final Weights.

The list will be published on www.markit.com after selection. A new series will roll every 6 months. Each series will have a fixed coupon of 100 and a recovery rate of 25%.

Markit iTraxx SovX Asia Pacific Index

The Markit iTraxx SovX Asia Pacific Index is a tradable index composed of the top 10 most liquid sovereign entities from the Asia Pacific region.

The constituents are the 10 countries with the largest sum of weekly trading activity (as measured in the DTCC Trade Information Warehouse) over the last six months preceding the last Friday of the month prior to the roll date. If there are names that have the same sum of net weekly trading activity, a dealer poll will be held to determine which entity will be included in the index. The 11 name universe of Asia Pacific countries comprises Australia, China, Hong Kong, Indonesia, Japan, Korea, Malaysia, New Zealand, Philippines, Thailand, and Vietnam. The number of constituents is set at 10 but may be changed from time to time at an index roll upon reasonable notice.

The list will be published on www.markit.com after selection. A new series will roll every 6 months. The index will be quoted in spread terms.

Markit iTraxx SovX Latin America Index

The Markit iTraxx SovX Latin America Index is composed of the top 8 most liquid sovereign entities from the Latin American region. The constituents are equally weighted. Although the index is a theoretical benchmark index, it will be portable to a tradable index.

The constituents are the 8 countries with the largest sum of weekly trading activity (as measured in the DTCC Trade Information Warehouse) over the last six months preceding the last Friday of the month prior to the roll date. The 12 name universe of Latin American countries comprises Argentina, Brazil, Chile, Colombia, Costa Rica, El Salvador, Guatemala, Mexico, Panama, Peru, Uruguay, and Venezuela. The number of constituents is set at 8 but may be changed from time to time at an index roll upon reasonable notice.

The list will be published on www.markit.com after selection. A new series will roll every 6 months. The index will be quoted in spread terms.

Markit iTraxx SovX Global Liquid Investment Grade Index

The Markit iTraxx SovX Global Liquid Investment Grade Index is composed of a variable number of constituents based on the most liquid high-grade global sovereign entities.

The regional breakdown of the Markit SovX Global Liquid Investment Grade Index is:

Region	Min. # of constituents	Max. # of constituents
Asia Pacific	2	5
Eastern Europe	2	5
Latin America	2	5
Middle East & Africa	2	5
North America	1	2
Western Europe	2	5

- Selection Criteria
  - All entities must be rated investment grade. Entities rated below BBB-/ Baa3 are excluded. Fitch, Moody's and S&P ratings are considered. If an entity is rated by two or more agencies, the lowest rating is considered.
  - Rating changes that could affect the index membership are taken into account if Markit is notified prior to 5:00 pm London time on the last London Business Day of the month prior to the roll date.
  - The sum of the weekly trading activity -- as measured in the DTCC Trade Information Warehouse over the last six months preceding the last Friday of the month prior to the roll date -- is used for selection.
  - If there are more than the maximum required constituents in a region, Markit will select the entities with the largest net weekly trading activity in the Trade Information Warehouse.
  - If there are fewer than the minimum required constituents in a region, Markit will select the entities with the higher number of contributors.

Markit iTraxx SovX G7 Index

The Markit iTraxx SovX G7 Index is composed of the top industrialized countries in the world. The constituents are equally weighted. Although the index is starting as a theoretical benchmark index, it will be portable to a tradable index.

The constituents are selected from the universe of the G7 states (Canada, France, Germany, Italy, Japan, the United Kingdom and the United States).

- Selection Criteria
  - An entity must be part of the top 500 entities in terms of the sum of the net weekly trading activity as measured in the DTCC Trade Information Warehouse over the last six months preceding the last Friday of the month prior to the roll date, to be included.

Markit iTraxx SovX BRIC Index

The Markit iTraxx SovX BRIC Index is composed of the BRIC countries. The constituents are equally weighted. Although the index is starting as a theoretical benchmark index, it will be portable to a tradable index.

The constituents are selected from the universe of the BRIC countries (Brazil, Russia, India, and China).

- Selection Criteria
  - An entity must be part of the Top 100 entities in terms of the sum of the net weekly trading activity as measured in the DTCC Trade Information Warehouse over the last six months preceding the last Friday of the month prior to the roll date, to be included.

Markit iTraxx LevX Rules

Markit iTraxx LevX

- The Markit iTraxx LevX Senior Index comprises the 40 most liquid “1st lien” Reference Obligations traded on the European Leveraged Loan CDS (LCDS) market.
- For the purposes of determining whether a Reference Obligation qualifies for inclusion in the relevant Markit iTraxx LevX Index, structural subordination shall be taken into account.
- The number of Reference Obligations in the Markit iTraxx LevX Index may be adjusted from time to time at an index roll upon reasonable notice if warranted by market conditions, subject to vote by Eligible LevX Market Makers in accordance with the procedures below.

Liquidity Poll

The initial two series of the Markit iTraxx LevX Index were selected by a Market Maker poll and were not necessarily linked to LCDS trading volumes. In relation to each subsequent Markit iTraxx LevX Index series each Market Maker will submit to Markit a separate list of single-name LCDS trading volumes (denominated in the currency traded) for use in the selection of the following series of the Markit iTraxx LevX Index. If the LCDS volumes are submitted by Market Makers in a currency other than Euro, the end-of-day currency rates on the last Business Day of the month prior to roll date published by WM Company will be used to determine its equivalent amount in Euro. Markit will select the index constituents based on the following criteria:

- The Reference Obligations and other relevant information are obtained from the Markit RED LCDS Database in conjunction with input from the Market Makers.
- Reference Obligations with the highest LCDS trading volumes, as measured over the previous 6 months.
- Internal transactions (e.g., those with an internal proprietary desk) are excluded from the volume statistics. The Reference Obligations on the list will be identified by the relevant unique identifier.

Membership determination

- The minimum qualifying size of a Reference Obligation for index membership is €500 million (or equivalent) for the Markit iTraxx LevX Senior Index (constituting 1st lien tranches only). Such qualifying size will be measured on a lien-by-lien basis at close of business five Business Days before the roll date. If the Reference Obligation is not denominated in Euro, the end-of-day currency rates on the last Business Day of the month prior to roll date published by WM Company will be used to determine its equivalent amount in Euro.
- Each constituent must be a Secured Reference Obligation (as defined in the LevX Standard Terms).
- If it is confirmed that two or more Reference Obligations are related to the same or a related obligor, then the most liquid Reference Obligation qualifies for index membership. A related obligor in this context is an obligor that has more than 50% of the voting rights of another obligor. Affiliates of an obligor included in the index, already guaranteed by that obligor, are eliminated.

Markit CDX Rules

Rules for CDX.NA.IG Index (the "IG Rules")

1 ADMINISTRATION OF THE INDEX

1.1 CDX.NA.IG Index (the "IG Index") is composed of one hundred twenty five (125) investment grade entities domiciled in North America, distributed among five (5) sub-sectors. The composition of the IG Index shall be determined by the Administrator in accordance with the rules and procedures provided for herein, provided that in making any determination hereunder the Administrator may depart from, or otherwise make an exception to, the rules, timelines and procedures provided for herein (which may be at the request of an Eligible IG Member or otherwise) and provided further that any such departure or exception is approved by a Quorum Majority.

1.2 Each Member may elect, as provided in the General Rules, to participate in the process and determination of the IG Index and each related sub-index on a continuing basis (the "IG Members"). Markit and/or the Administrator shall from time to time publish an updated list of IG Members. Each IG Index will begin on September 20 (or the Business Day immediately thereafter in the event that September 20 is not a Business Day) and March 20 (or the Business Day immediately thereafter in the event that March 20 is not a Business Day) of each calendar year (each such date a "Roll Date"); provided that if a Quorum Majority votes to change the Roll Date, the Roll Date shall be the Business Day designated by such Quorum Majority.

1.3 All information submitted by IG Members to the Administrator shall be received by the Administrator in confidence.

1.4 Affiliates of an entity included in the IG Index (the "Current Index Entity") that either (a) are guaranteed or controlled (directly or indirectly) by such Current Index Entity or (b) guarantee or control (directly or indirectly) such Current Index Entity (such affiliate, a "Relevant Affiliate"), are not eligible for inclusion in the IG Index unless:

(i) such Current Index Entity has previously been determined to be subject to exclusion from the new IG Index; or
(ii) such Relevant Affiliate is determined to be higher in ranking in the IG Liquidity Rankings than such Current Index Entity,

in which case such Relevant Affiliate shall be subject to inclusion in the new IG Index and such Current Index Entity will be excluded from the new IG Index as if it were being excluded in accordance with Section 3.11 of Part III below. For this purpose "control" of any entity means ownership of a majority of the voting power of that entity. For the avoidance of doubt, affiliates of an entity included in the IG Index that either (a) are not controlled or guaranteed by such entity or (b) do not control or guarantee such entity, are eligible for inclusion.

Additionally, if two Current Index Entities are determined to be affiliates, the less liquid entity will be excluded from the new HY Index. Liquidity will be determined based on the HY Liquidity Rankings.

1.5 The composition of the IG Index and related sub-indices is the same for all maturities for which a fixed rate is published.

1.6 Each IG Index and each HVOL sub-index of the IG Index that has a Roll Date of September 20 (or the Business Day immediately thereafter in the event that September 20 is not a Business Day) shall have fixed rates published for each of the following maturity dates: (i) December 20 of the first new calendar year following such Roll Date, (ii) December 20 of the second new calendar year following such Roll Date, (iii) December 20 of the third new calendar year following such Roll Date, (iv) December 20 of the fifth new calendar year following such Roll Date, (v) December 20 of the seventh new calendar year following such Roll Date, and (vi) December 20 of the tenth new calendar year following such Roll Date.

1.7 Each IG Index and each HVOL sub-index of the IG Index that has a Roll Date of March 20 (or the Business Day immediately thereafter in the event that March 20 is not a Business Day) shall have fixed rates published for each of the following maturity dates: (i) June 20 of the first new calendar year following such Roll Date, (ii) June 20 of the second new calendar year following such Roll Date, (iii) June 20 of the third new calendar year following such Roll Date, (iv) June 20 of the fifth new calendar year following such Roll Date, (v) June 20 of the seventh new calendar year following such Roll Date and (vi) June 20 of the tenth new calendar year following such Roll Date.

1.8 Each IG Index sub-index other than the HVOL sub-index that has a Roll Date of September 20 (or the Business Day immediately thereafter in the event that September 20 is not a Business Day) shall have a fixed rate published for the maturity date of December 20 of the fifth new calendar year following such Roll Date.

1.9 Each IG Index sub-index other than the HVOL sub-index that has a Roll Date of March 20 (or the Business Day immediately thereafter in the event that March 20 is not a Business Day) shall have a fixed rate published for the maturity date of June 20 of the fifth new calendar year following such Roll Date.

1.10 Each IG Index shall be composed of one hundred twenty five (125) entities, each with an equal weighting of 0.8%. Each entity in a sub-index of an IG Index will have equal or approximately equal weightings. For annexes relating to a sub-index of an IG Index published by the Administrator that contain weightings, the weighting for each entity will be equal to (i) one divided by (ii) the number of entities in such sub-index of the IG Index, expressed as a percentage with three decimal places (e.g., 3.226%). In the case where rounding is necessary to express the weightings in this manner, the entities shall be arranged in alphabetical order, with the weightings of the entities on the top of the list being rounded up to the nearest one-thousandth of a percent and the weightings of the entities on the bottom of the list being rounded down to the nearest one-thousandth of a percent until all weightings have been rounded and the aggregate of the weightings equals exactly 100%.

2 <u>ELIGIBILITY RULES</u>

2.1 At any time, an IG Member shall be deemed not “Eligible” if, with respect to any vote under these IG Rules, at such time the IG Member has been deemed to be “Suspended” with respect to the IG Index as provided in the Eligibility Rules in Part II above. The Administrator shall at all times have the right to deem an IG Member to be “Eligible”, notwithstanding that such IG Member has been deemed to be “Suspended”.

3 <u>PROCESS IN CONNECTION WITH A ROLL</u>

3.1 No later than twelve (12) Business Days prior to the Roll Date of a new IG Index, the Administrator will determine whether any entity in the then current IG Index shall be excluded from the new IG Index for the next six-month period based on one or more of the following criteria having occurred or being applicable to an entity in the then current IG Index:

(a) if any entity in the then current IG Index is assigned a Relevant Rating (as defined below) (i) by each of Standard & Poor's Rating Services, a division of The McGraw-Hill Companies, Inc. (“S&P”), Moody's Investors Service Limited (“Moody's”) and Fitch Ratings Ltd (“Fitch”) and any two of such Relevant Ratings is rated below “BBB-” or “Baa3”, as applicable (each such rating grade, an “IG Eligible

Rating Grade"); (ii) by two, but not more than two, of S&P, Moody's and Fitch and any such Relevant Rating is rated below the IG Eligible Rating Grade; or (iii) by one only of S&P, Moody's and Fitch and such Relevant Rating is rated below the IG Eligible Rating Grade.

"Relevant Rating" means, in respect of any entity, the rating assigned to such entity by any of S&P, Moody's or Fitch; provided that, if none of S&P, Moody's or Fitch has assigned a rating to such entity but any of S&P, Moody's or Fitch has assigned a long-term credit rating to the associated reference obligation of such entity (determined in accordance with Section 3.8 below), each long-term credit rating or ratings assigned by any of S&P, Moody's or Fitch; and provided further that, if none of S&P, Moody's or Fitch has assigned a rating to such entity and no reference obligation is associated with such entity in accordance with Section 3.8 below but any of S&P, Moody's or Fitch has assigned a long-term credit rating to any unsubordinated obligation of such entity, the highest long-term credit rating assigned by any of S&P, Moody's or Fitch to any such unsubordinated obligation of such entity. For the avoidance of doubt, if either an entity has no associated reference obligation and the Administrator is not otherwise able to identify any other unsubordinated obligation of such entity or none of S&P, Moody's or Fitch has assigned a long-term credit rating to any associated reference obligation or other unsubordinated obligation of such entity, then that entity shall be excluded from the new IG Index;

(b) a merger or other corporate action has occurred or been announced in relation to any entity in the then current IG Index that renders such entity no longer suitable for inclusion as determined by the Administrator;

(c) the occurrence in respect of any entity in the then current IG Index of either (i) a Credit Event Resolution Request Date with respect to which, as at the date of determination, neither a DC Credit Event Announcement nor a DC No Credit Event Announcement has yet occurred or (ii) a DC Credit Event Announcement on, or since, the Roll Date in respect of the then current IG Index, in each case determined in accordance with, and as defined in, the 2003 ISDA Credit Derivatives Definitions as supplemented by the 2005 Matrix Supplement to the 2003 ISDA Credit Derivatives Definitions and the 2009 ISDA Credit Derivatives Determinations Committees, Auction Settlement and Restructuring Supplement to the 2003 ISDA Credit Derivatives Definitions, each published by the International Swaps and Derivatives Association, Inc. (the "Credit Derivatives Definitions");

(d) any entity in the then current IG Index which the Administrator determines has issued or guaranteed less than $100,000,000 (or an equivalent amount in any other currency or combination of currencies) of outstanding publicly traded debt securities (which, for the avoidance of doubt, excludes other obligations including without limitation loans and equities and privately placed debt securities) that are denominated in a Standard Specified Currency (as defined in the Credit Derivatives Definitions) and that have settled on or prior to the close of business in New York City on the 12th Business Day preceding the Roll Date; and

(e) any entity in the then current IG Index that is a market-maker in the IG Index as determined by the Administrator.

3.2 No later than eleven (11) Business Days prior to the Roll Date of a new IG Index, the Administrator will notify the Eligible IG Members of:

(a) a list of eligible entities in respect of which Credit Derivative Transactions (as defined in the Credit Derivatives Definitions) are traded under the Standard North American Corporate Transaction Type (as defined in the Credit Derivatives Definitions) that are published on the DTCC Trade Information Warehouse (market risk activity for the Top 1000 names); and

(b) the sub-sector of the IG Index that the Administrator has designated to be applicable to each such entity.

3.3 In the event that any Eligible IG Member notifies the Administrator of a discrepancy or inaccuracy in the items specified in Section 3.2 on or before the date falling nine (9) Business Days prior to the Roll Date of a new IG Index, the Administrator shall promptly repeat its determinations and re-notify Eligible IG Members of the items specified in Section 3.2. In the event that, following such notice, any Eligible IG Member notifies the Administrator of a discrepancy or inaccuracy in the items specified in Section 3.2, this process shall be repeated until such time as no Eligible IG Members notify the Administrator of a discrepancy or inaccuracy in the items specified in Section 3.2 or until such time as the Administrator determines, acting in good faith and in a commercially reasonable manner, that it will make no further amendments to the relevant lists.

3.4 No later than nine (9) Business Days prior to the Roll Date of a new IG Index, the Administrator will notify Eligible IG Members of:

(a) a list of the entities in the then current IG Index that the Administrator has determined in accordance with Section 3.1 shall be excluded from the new IG Index; and

(b) on the basis of the IG Liquidity Rankings (as defined in Section 3.7 below), a list of (i) the entities in the then current IG Index that the Administrator has determined in accordance with Section 3.7 below shall be excluded from the new IG Index and (ii) the entities in the IG Liquidity Rankings but not in the then current IG Index that the Administrator has determined in accordance with Section 3.7 below shall be included in the new IG Index.

3.5 Not later than the date falling eight (8) Business Days prior to the Roll Date of a new IG Index, the Administrator shall organize a call with Eligible IG Members to solicit additional feedback on the accuracy of the proposed inclusions and exclusions in relation to the new IG Index notified to Eligible IG Members in accordance with Section 3.4 above. In the event that any Eligible IG Member notifies the Administrator of a discrepancy or inaccuracy in the items specified in Section 3.4, the Administrator shall promptly re-determine the inclusions and exclusions in relation to the new IG Index in accordance with Section 3.4 and this process shall be repeated until such time as no Eligible IG Member notifies the Administrator of a discrepancy or inaccuracy in the items specified in Section 3.4 or until such time as the Administrator determines, acting in good faith and in a commercially reasonable manner, that it will make no further amendments to the relevant lists.

3.6 Not later than the date falling seven (7) Business Days prior to the Roll Date of a new IG Index (the "Index Publication Date"), the Administrator shall:

(a) subject to Section 3.12 and Section 3.15 below, make a final determination in accordance with Section 3.1 of each entity in the then current IG Index that shall be excluded from the new IG Index;

(b) subject to Section 3.12 and Section 3.15 below, make a final determination in accordance with Section 3.4 above of (i) each entity in the then current IG Index that shall be excluded from the new IG Index and (ii) each entity in the final IG Liquidity Rankings but not in the then current IG Index that shall be included in the new IG Index; and

(c) publish to the public and Eligible IG Members the composition of the provisional new IG Index for that next six-month period. At such time, the Administrator will also publish to the public the current list of Eligible IG Members for the new IG Index.

3.7 The Administrator shall, on each date on which it is required to do so in accordance with Section 3.4 and Section 3.5 (if applicable), determine:

(a) the ranking of each eligible entity specified in Section 3.2(a) above, from the most liquid to the most illiquid, based on the market risk activity in relation to such entities during the six month period prior to the last Friday of (i) the February preceding the new Roll Date if such Roll Date is due to occur in March or (ii) the August preceding the new Roll Date if such Roll Date is due to occur in September, in each case as published on the DTCC Trade Information Warehouse (market risk activity for the Top 1000 names). To the extent that two or more entities are determined to be equally liquid, the Administrator shall rank such entities from the most liquid to the most illiquid based first on the number of contracts that are specified to have been entered into in relation to such entities as published on the DTCC Trade Information Warehouse (market risk activity for the Top 1000 names) and, if an equal number of contracts are specified, in alphabetical order (such overall rankings, the "IG Liquidity Rankings");

(b) the entities that are in the highest 20% in ranking of the entities in the IG Liquidity Rankings and that are not included in the then current IG Index, which entities shall be included in the new IG Index;

(c) the entities that are in the lowest 30% in ranking of the entities in the IG Liquidity Rankings and that are included in the then current IG Index, which entities are to be excluded from the new IG Index; and

(d) the number of entities to be included in the new IG Index in accordance with Section 3.7(b) above (the "Number of Initial Additions") and the number of entities to be excluded from the new IG Index in accordance with Section 3.1 and Section 3.7(c) above (the "Number of Initial Exclusions"), and:

(i) if the Number of Initial Additions exceeds the Number of Initial Exclusions, then a further number of entities in the then current IG Index equal in number to such excess shall be excluded from the new IG Index and such entities shall consist of the relevant number of entities that are in the then current IG Index with the lowest ranking in the IG Liquidity Rankings and that have not previously been determined to be subject to exclusion from the new IG Index; and

(ii) if the Number of Initial Exclusions exceeds the Number of Initial Additions, then a further number of entities equal in number to such excess shall be included in the new IG Index and such entities shall consist of the relevant number of entities that are not included in the then current IG Index with the highest ranking in the IG Liquidity Rankings and that have not previously been determined to be subject to inclusion in the new IG Index.

3.8 After the composition of the new IG Index for the next six-month period has been finalized, the Administrator will identify a single reference obligation of each entity in the IG Index (other than entities identified as monoline insurers by the Administrator), senior in priority of payment, based on the Reference Entity Database ("RED"). In the event that a reference obligation that is senior in priority of payment for an entity in the new IG Index is not listed in RED, the Administrator will select the most liquid of the senior in priority of payment reference obligations associated with such entity based on the market risk activity in relation to such entities and such obligations during the six month period prior to the last Friday of (i) the February preceding the new Roll Date if such Roll Date is due to occur in March or (ii) the August preceding the new Roll Date if such Roll Date is due to occur in September, in each case as published on the DTCC Trade Information Warehouse (market risk activity for the Top 1000 names) or, if the most liquid Credit Derivative Transaction referencing the relevant entity does not specify a reference obligation in respect of such entity, then no reference obligation shall be associated with such entity. Once the Administrator has identified a single reference obligation for each non-monoline entity in the IG Index (or determined that no reference obligation will be associated with any such non-monoline entity), it will undertake all reasonable efforts to procure the review of the documentation relating to any such reference obligation on the same basis as if such reference obligation were in RED and notify Eligible IG Members of a preliminary list of such identified reference obligations for each entity and entities in respect of which it has determined that no reference obligation will be associated. If within one (1) Business Day after notifying the Eligible IG Members of such list, at least three Eligible IG Members have informed the Administrator in writing of an objection to any determination specified on such list, the Administrator will submit the matter to the Eligible IG Members for a vote. If (i) a Quorum Majority do not approve of such determination and no other course of action is approved by a Quorum Majority or (ii) if the Administrator cannot procure the review of the reference obligation documentation and a Quorum Majority does not approve of the inclusion of such reference obligation without such review, such entity will be excluded from the new IG Index as if it were being excluded in accordance with Section 3.11 below.

3.9 No later than six (6) Business Days prior to the Roll Date of a new IG Index, the Administrator will determine the thirty (30) entities within the new IG Index that, as at the date of determination, have the largest average CDS spread over the ninety (90) day period immediately preceding such date by reference to the Markit End of Day composite spread on transactions with a 5 year maturity (or if such spreads are not available in respect of any entity for the preceding ninety (90) day period, the average CDS spread in respect of such entity shall be determined in relation to those days during the preceding ninety (90) day period for which such information is available) (the "Average CDS Spread"). These entities shall constitute the HVOL sub-index of the new IG Index. In the event that two or more entities are determined to have the same Average CDS Spread and, as a result, it is not possible to determine which entity is the thirtieth (30th) entity among the entities with the largest Average CDS Spread, then each entity with such Average CDS Spread, shall be included in the HVOL sub-index of the new IG Index based on their ranking amongst such entities in the IG Liquidity Rankings starting with the highest first, until the thirtieth (30th) entity is included.

3.10 No later than 11:00 a.m. on the date five (5) Business Days prior to the Roll Date of a new IG Index (the "HVOL Index Publication Date"), the Administrator will publish to the public and Eligible IG Members the composition of the provisional new HVOL sub-index for that next six-month period.

3.11 On any day up to, and including, the date falling four (4) Business Days prior to the Roll Date of a new IG Index, the Administrator may determine that any entity that:

(a) is in the then current IG Index; or

(b) the Administrator had previously determined in accordance with Section 3.4 shall be included in the new IG Index,

fails any of the criteria specified in Section 3.1(a), Section 3.1(b), Section 3.1(d) or Section 3.1(e) and shall be excluded from the new IG Index.

3.12 If the Administrator determines that any entity shall be excluded from the new IG Index in accordance with Section 3.11 then the entity that is not in the then current IG Index with the highest ranking in the IG Liquidity Rankings and that has not previously been determined to be subject to inclusion in the new IG Index shall be included in the new IG Index as a replacement for such entity. If the entity being excluded from the new IG Index was to be a constituent of the HVOL sub-index then the entity in the new IG Index (which may include the replacement entity determined in accordance with the preceding sentence) with the largest Average CDS Spread that has not previously been determined to be subject to inclusion in the HVOL sub-index shall be included in the HVOL sub-index as a replacement for such entity.

3.13 Not later than three (3) Business Days prior to the Roll Date of a new IG Index (the "Fixed Rate Determination Date"), the fixed rate for each maturity of the new IG Index and the HVOL sub-index will be determined by the Administrator and the Administrator will publicize such fixed rates.

3.14 On any day up to, and including, the date falling two (2) Business Days prior to the Roll Date of a new IG Index, the Administrator may determine that any entity that:

(a) is in the then current IG Index; or

(b) the Administrator had previously determined in accordance with Section 3.4 shall be included in the new IG Index,

fails the criteria specified in Section 3.1(c) and shall be excluded from the new IG Index.

3.15 If the Administrator determines that any entity shall be excluded from the new IG Index in accordance with Section 3.14 then the entity that is not in the then current IG Index with the highest ranking in the IG Liquidity Rankings and that has not previously been determined to be subject to inclusion in the new IG Index shall be included in the new IG Index as a replacement for such entity. If the entity being excluded from the new IG Index was to be a constituent of the HVOL sub-index then the entity in the new IG Index (which may include the replacement entity determined in accordance with the preceding sentence) with the largest Average CDS Spread that has not previously been determined to be subject to inclusion in the HVOL sub-index shall be included in the HVOL sub-index as a replacement for such entity.

3.14 Two (2) Business Days prior to the Roll Date of a new IG Index, the Administrator will publish to the Eligible IG Members a draft of the annex for the IG Index and each sub-index along with the weighting and final reference obligations (if applicable) for each entity within the new IG Index and each new sub-index. The final annex for a new IG Index and each sub-index will be published after 5:00 p.m. on the Business Day immediately preceding the Roll Date of such new IG Index.

3.15 Products based on the new IG Index will begin trading on the Roll Date of such new IG Index.

4 CHANGES TO AN IG INDEX

4.1 Removal of a Reference Entity. In the event that three or more Eligible IG Members request that the Administrator remove an entity from an IG Index (specifying in writing the reason for such proposed removal), on the Business Day on which the Administrator receives the third such request, or on the following Business Day if such request is received after 11:00 a.m., the Administrator will solicit votes from each Eligible IG Member to indicate whether such Eligible IG Member agrees that such entity should be removed from such IG Index. In the event that a Quorum Majority agrees that the entity should be removed from such IG Index, the Administrator shall remove such entity from such IG Index and any relevant sub-indices and immediately publicize such removal and the resulting new composition of such IG Index and any relevant sub-indices with effect from the Business Day immediately following such publication. In addition, the Administrator will publish a new version of the annex for such IG Index and any relevant sub-indices in which the weightings of the remaining entities in such IG Index or sub-indices will remain constant and the removed entity will have a weighting of zero.

Rules for CDX.NA.HY Index (the “HY Rules”)

1 ADMINISTRATION OF THE INDEX

1.1 CDX.NA.HY Index (the “HY Index”) is composed of one hundred (100) non-investment grade entities domiciled in North America, distributed among ten (10) sub-sectors. The composition of the HY Index shall be determined by the Administrator in accordance with the rules and procedures provided for herein, provided that in making any determination hereunder the Administrator may depart from, or otherwise make an exception to, the rules, timelines and procedures provided for herein (which may be at the request of an Eligible HY Member or otherwise) and provided further that any such departure or exception is approved by a Quorum Majority.

1.2 Each Member may elect, as provided in the General Rules, to participate in the process and determination of the HY Index and each related sub-index on a continuing basis (the “HY Members”). Markit and/or the Administrator shall from time to time publish an updated list of HY Members. Each HY

Index will begin on September 27 (or the Business Day immediately thereafter in the event that September 27 is not a Business Day) and March 27 (or the Business Day immediately thereafter in the event that March 27 is not a Business Day) of each calendar year (each such date a "Roll Date"); provided that if a Quorum Majority votes to change the Roll Date, the Roll Date shall be the Business Day designated by such Quorum Majority.

1.3 All information submitted by HY Members to the Administrator shall be received by the Administrator in confidence.

1.4 Affiliates of an entity included in the HY Index (the "Current Index Entity") that either (a) are guaranteed or controlled (directly or indirectly) by such Current Index Entity or (b) guarantee or control (directly or indirectly) such Current Index Entity (such affiliate, a "Relevant Affiliate"), are not eligible for inclusion in the HY Index unless:

(i) such Current Index Entity has previously been determined to be subject to exclusion from the new HY Index; or

(ii) such Relevant Affiliate is determined to be higher in ranking in the HY Liquidity Rankings than such Current Index Entity,

in which case such Relevant Affiliate shall be subject to inclusion in the new HY Index and such Current Index Entity will be excluded from the new HY Index as if it were being excluded in accordance with Section 3.11 of Part III below. For this purpose "control" of any entity means ownership of a majority of the voting power of that entity. For the avoidance of doubt, affiliates of an entity included in the HY Index that either (a) are not controlled or guaranteed by such entity or (b) do not control or guarantee such entity, are eligible for inclusion.

Additionally, if two Current Index Entities are determined to be affiliates, the less liquid entity will be excluded from the new HY Index. Liquidity will be determined based on the HY Liquidity Rankings.

1.5 The composition of the HY Index and related sub-indices is the same for all maturities for which a fixed rate is published.

1.6 Each HY Index and each sub-index of the HY Index that has a Roll Date of September 27 (or the Business Day immediately thereafter in the event that September 27 is not a Business Day) shall have fixed rates published for each of the following maturity dates: (i) December 20 of the third new calendar year following such Roll Date, (ii) December 20 of the fifth new calendar year following such Roll Date, (iii) December 20 of the seventh new calendar year following such Roll Date and (iv) December 20 of the tenth new calendar year following such Roll Date.

1.7 Each HY Index and each sub-index of the HY Index that has a Roll Date of March 27 (or the Business Day immediately thereafter in the event that March 27 is not a Business Day) shall have fixed rates published for each of the following maturity dates: (i) June 20 of the third new calendar year following such Roll Date, (ii) June 20 of the fifth new calendar year following such Roll Date, (iii) June 20 of the seventh new calendar year following such Roll Date and (iv) June 20 of the tenth new calendar year following such Roll Date.

1.8 Each HY Index sub-index that has a Roll Date of September 27 (or the Business Day immediately thereafter in the event that September 27 is not a Business Day) shall have a fixed rate published for the maturity date of December 20 of the fifth new calendar year following such Roll Date.

1.9 Each HY Index sub-index that has a Roll Date of March 27 (or the Business Day immediately thereafter in the event that March 27 is not a Business Day) shall have a fixed rate published for the maturity date of June 20 of the fifth new calendar year following such Roll Date.

1.10 Each HY Index shall be composed of one hundred (100) entities, each with an equal weighting of 1.0%. Each entity in a sub-index of an HY Index will have equal or approximately equal weightings. For annexes relating to a sub-index of an HY Index published by the Administrator that contain weightings, the weighting for each entity will be equal to (i) one divided by (ii) the number of entities in such sub-index of the HY Index, expressed as a percentage with three decimal places (e.g., 3.226%). In the case where rounding is necessary to express the weightings in this manner, the entities shall be arranged in alphabetical order, with the weightings of the entities on the top of the list being rounded up to the nearest one-thousandth of a percent and the weightings of the entities on the bottom of the list being rounded down to the nearest one-thousandth of a percent until all weightings have been rounded and the aggregate of the weightings equals exactly 100%.

2 ELIGIBILITY RULES

2.1 At any time, an HY Member shall be deemed not “Eligible” if, with respect to any vote under these HY Rules, at such time the HY Member has been deemed to be “Suspended” with respect to the HY Index as provided in the Eligibility Rules in Part II above. The Administrator shall at all times have the right to deem an HY Member to be “Eligible”, notwithstanding that such HY Member has been deemed to be “Suspended”.

3 PROCESS IN CONNECTION WITH A ROLL

3.1 No later than twelve (12) Business Days prior to the Roll Date of a new HY Index, the Administrator will determine whether any entity in the then current HY Index shall be excluded from the new HY Index for the next six-month period based on one or more of the following criteria having occurred or being applicable to an entity in the then current HY Index:

(a) if any entity in the then current HY Index is assigned a Relevant Rating (as defined below) (i) by two or more of Standard & Poor's Rating Services, a division of The McGraw-Hill Companies, Inc. (“S&P”), Moody's Investors Service Limited (“Moody's”) and Fitch Ratings Ltd (“Fitch”) and any two or more of such Relevant Ratings is rated “BBB-” or “Baa3” or higher, as applicable (each such rating grade, an “HY Ineligible Rating Grade”); or (ii) by one only of S&P, Moody's and Fitch and such Relevant Rating is rated equal to or higher than the HY Ineligible Rating Grade.

“Relevant Rating” means, in respect of any entity in respect of which any of S&P, Moody's or Fitch has assigned a long-term credit rating to the associated reference obligation of such entity (determined in accordance with Section 3.8 below), each long-term credit rating assigned by any of S&P, Moody's or Fitch; provided that, if no reference obligation is associated with such entity in accordance with Section 3.8 below but any of S&P, Moody's or Fitch has assigned a long-term credit rating to any unsubordinated obligation of such entity, the highest long-term credit rating assigned by any of S&P, Moody's or Fitch to any such unsubordinated obligation of such entity. For the avoidance of doubt, if either an entity has no associated reference obligation and the Administrator is not otherwise able to identify any other unsubordinated obligation of such entity or none of S&P, Moody's or Fitch has assigned a long-term credit rating to any associated reference obligation or other unsubordinated obligation of such entity, then that entity shall be excluded from the new HY Index;

(b) a merger or other corporate action has occurred or been announced in relation to any entity in the then current HY Index that renders such entity no longer suitable for inclusion as determined by the Administrator;

(c) the occurrence in respect of any entity in the then current HY Index of either (i) a Credit Event

Resolution Request Date with respect to which, as at the date of determination, neither a DC Credit Event Announcement nor a DC No Credit Event Announcement has yet occurred or (ii) a DC Credit Event Announcement on, or since, the Roll Date in respect of the then current HY Index, in each case determined in accordance with, and as defined in, the 2003 ISDA Credit Derivatives Definitions as supplemented by the 2005 Matrix Supplement to the 2003 ISDA Credit Derivatives Definitions and the 2009 ISDA Credit Derivatives Determinations Committees, Auction Settlement and Restructuring Supplement to the 2003 ISDA Credit Derivatives Definitions, each published by the International Swaps and Derivatives Association, Inc. (the "Credit Derivatives Definitions");

(d) any entity in the then current HY Index which the Administrator determines has issued or guaranteed less than $100,000,000 (or an equivalent amount in any other currency or combination of currencies) of outstanding publicly traded debt securities (which, for the avoidance of doubt, excludes other obligations including without limitation loans and equities and privately placed debt securities) that are denominated in a Standard Specified Currency (as defined in the Credit Derivatives Definitions) and that have settled on or prior to the close of business in New York City on the 12th Business Day preceding the Roll Date; and

(e) any entity in the then current HY Index that is a market-maker in the HY Index as determined by the Administrator.

3.2 No later than eleven (11) Business Days prior to the Roll Date of a new HY Index, the Administrator will notify the Eligible HY Members of:

(a) a list of eligible entities in respect of which Credit Derivative Transactions (as defined in the Credit Derivatives Definitions) are traded under the Standard North American Corporate Transaction Type (as defined in the Credit Derivatives Definitions) that are published on the DTCC Trade Information Warehouse (market risk activity for the Top 1000 names);

(b) the sub-sector of the HY Index that the Administrator has designated to be applicable to each such entity; and

(c) the rating applicable to each such entity determined by the Administrator on the basis that if an entity is assigned a Relevant Rating (as defined in Section 3.1 above) (i) by each of S&P, Moody's and Fitch and none of the ratings are the same or equivalent, the median of such ratings shall be the applicable rating, (ii) by each of S&P, Moody's and Fitch and two or more of the ratings are the same or equivalent, such identical or equivalent ratings shall be the applicable rating, (iii) by two, but not more than two, of S&P, Moody's and Fitch and such ratings are not the same or equivalent, the lower of such ratings shall be the applicable rating, (iv) by two only of S&P, Moody's and Fitch such ratings are the same or equivalent, such identical or equivalent ratings shall be the applicable rating and (v) by one only of S&P, Moody's and Fitch, such rating shall be the applicable rating.

3.3 In the event that any Eligible HY Member notifies the Administrator of a discrepancy or inaccuracy in the items specified in Section 3.2 on or before the date falling nine (9) Business Days prior to the Roll Date of a new HY Index, the Administrator shall promptly repeat its determinations and re-notify Eligible HY Members of the items specified in Section 3.2. In the event that, following such notice, any Eligible HY Member notifies the Administrator of a discrepancy or inaccuracy in the items specified in Section 3.2, this process shall be repeated until such time as no Eligible HY Members notify the Administrator of a discrepancy or inaccuracy in the items specified in Section 3.2 or until such time as the Administrator determines, acting in good faith and a commercially reasonable manner, that it will make no further amendments to the relevant lists.

3.4 No later than nine (9) Business Days prior to the Roll Date of a new HY Index, the Administrator will notify Eligible HY Members of:

(a) a list of the entities in the then current HY Index that the Administrator has determined in accordance with Section 3.1 shall be excluded from the new HY Index; and

(b) on the basis of the HY Liquidity Rankings (as defined in Section 3.7 below) and the sub-sector that the Administrator has designated to be applicable to each entity specified in the HY Liquidity Rankings, a list of:

(i) the entities in the then current HY Index that the Administrator has determined in accordance with Section 3.7 below shall be excluded from the new HY Index; and

(ii) the entities in the HY Liquidity Rankings but not in the then current HY Index that the Administrator has determined in accordance with Section 3.7 below shall be included in the new HY Index.

3.5 Not later than the date falling eight (8) Business Days prior to the Roll Date of a new HY Index, the Administrator shall organize a call with Eligible HY Members to solicit additional feedback on the accuracy of the proposed inclusions and exclusions in relation to the new HY Index notified to Eligible HY Members in accordance with Section 3.4 above. In the event that any Eligible HY Member notifies the Administrator of a discrepancy or inaccuracy in the items specified in Section 3.4, the Administrator shall promptly re-determine the inclusions and exclusions in relation to the new HY Index in accordance with Section 3.4 and this process shall be repeated until such time as no Eligible HY Member notifies the Administrator of a discrepancy or inaccuracy in the items specified in Section 3.4 or until such time as the Administrator determines, acting in good faith and a commercially reasonable manner, that it will make no further amendments to the relevant lists.

3.6 Not later than the date falling seven (7) Business Days prior to the Roll Date of a new HY Index (the "Index Publication Date"), the Administrator shall:

(a) subject to Section 3.11 and Section 3.14 below, make a final determination in accordance with Section 3.1 of each entity in the then current HY Index that shall be excluded from the new HY Index;

(b) subject to Section 3.11 and Section 3.14 below, make a final determination in accordance with Section 3.4 above of (i) each entity in the then current HY Index that shall be excluded from the new HY Index and (ii) each entity in the final HY Liquidity Rankings but not in the then current HY Index that shall be included in the new HY Index; and

(c) publish to the public and Eligible HY Members the composition of the provisional new HY Index for that next six-month period. At such time, the Administrator will also publish to the public the current list of Eligible HY Members for the new HY Index.

3.7 The Administrator shall, on each date on which it is required to do so in accordance with Section 3.4 and Section 3.5 (if applicable):

(a) determine the ranking of each eligible entity specified in Section 3.2(a) above, from the most liquid to the most illiquid, based on the market risk activity in relation to such entities during the six month period prior to the last Friday of (i) the February preceding the new Roll Date if such Roll Date is due to occur in March or (ii) the August preceding the new Roll Date if such Roll Date is due to occur in September, in each case as published on the DTCC Trade Information Warehouse (market risk activity for the Top 1000 names). To the extent that two or more entities are determined to be equally liquid, the Administrator shall rank such entities from the most liquid to the most illiquid based first on the number of contracts that are specified to have been entered into in relation to such entities as published on the DTCC Trade Information Warehouse (market risk activity for the Top 1000 names) and, if an equal number of contracts are specified, in alphabetical order (such overall rankings, the "HY Liquidity

Rankings");

(b) determine each sector in relation to which the aggregate weighting of the entities in the then current HY Index in such sector is less than the aggregate weighting of the entities in the sector that the Administrator determines to be the equivalent in the most recent series of the Markit iBoxx USD Liquid High Yield Index (a "Sector Deficiency") and shall include in the new HY Index one entity, being the entity with the highest ranking in the HY Liquidity Rankings that (i) is in the sector with the greatest Sector Deficiency amongst those sectors that have entities in them that satisfy sub-paragraph (ii), and (ii) is not included in the then current HY Index and has not previously been determined to be subject to inclusion in the new HY Index;

Additionally, any new entity that is being added to the index will meet the criteria that if (A) two or more Relevant Ratings have been assigned to it, the highest of those Relevant Ratings is equal to or lower than "BB+" or "Ba1", as applicable, and (B) if one Relevant Rating only has been assigned to it, such rating is equal to or lower than "BB+" or "Ba1", as applicable, and such entity is not on a positive ratings watch;

(c) following its determination in Section 3.7(b) above, the Administrator shall repeat the process specified in Section 3.7(b) until such time as the number of entities that shall be included in the new HY Index in accordance with Section 3.7(b) is equal to the aggregate number of entities excluded from the new HY Index in accordance with Section 3.1 above;

(d) determine each sector in relation to which the aggregate weighting of the entities in the then current HY Index in such sector exceeds the aggregate weighting of the entities in the sector that the Administrator determines to be the equivalent in the most recent series of the Markit iBoxx USD Liquid High Yield Index (a "Sector Excess") by an amount equal to or greater than 3% and shall exclude from the new HY Index one entity in each such sector, being the entity in the then current HY Index that is lowest in ranking in the HY Liquidity Rankings;

(e) determine each sector with a Sector Deficiency and include in the new HY Index one entity, being the entity with the highest ranking in the HY Liquidity Rankings that (i) is in the sector with the greatest Sector Deficiency amongst those sectors that have entities in them that satisfy sub-paragraph (ii), and (ii) is not included in the then current HY Index and has not previously been determined to be subject to inclusion in the new HY Index;

Additionally, any new entity that is being added to the index will meet the criteria that if (A) two or more Relevant Ratings have been assigned to it, the highest of those Relevant Ratings is equal to or lower than "BB+" or "Ba1", as applicable, and (B) if one Relevant Rating only has been assigned to it, such rating is equal to or lower than "BB+" or "Ba1", as applicable, and such entity is not on a positive ratings watch;

(f) following its determination in Section 3.7(e) above, the Administrator shall repeat the process specified in Section 3.7(e) until such time as the number of entities that shall be included in the new HY Index in accordance with Section 3.7(e) is equal to the aggregate number of entities excluded from the new HY Index in accordance with Section 3.7(d) above;

(g) following its determinations in Section 3.7(b), Section 3.7(c), Section 3.7(d), Section 3.7(e) and Section 3.7(f) above, the Administrator shall:

(i) re-calculate the aggregate weightings of the entities in the new HY Index by the rating of each entity determined in accordance with Section 3.2(c) above (each group of entities in the new HY Index with the same or an equivalent rating, a "Ratings Group");

(ii) determine each Ratings Group in relation to which the aggregate weighting of the entities comprising such Ratings Group exceeds the aggregate weighting of the entities that the Administrator determines comprise the equivalent Ratings Group in the most recent series of the Markit iBoxx USD Liquid High Yield Index (the “iBoxx Comparative Ratings Group”) by an amount equal to or greater than 3% and shall exclude from the new HY Index one entity from each such Ratings Group that is (i) designated to the sector with the greatest Sector Excess of those represented in the relevant Ratings Group and (ii) lowest in ranking in the HY Liquidity Rankings of the entities of such Ratings Group in such sector; and

(h) determine each Ratings Group with a rating of equal to or lower than “BB+” or “Ba1”, as applicable, in relation to which the aggregate weighting of the entities comprising each such Ratings Group is less than the aggregate weighting of the entities comprising the iBoxx Comparative Ratings Group (a “Ratings Group Deficiency”) and shall include in the new HY Index the highest ranking entity in the HY Liquidity Rankings that satisfies the following criteria: (i) it has the same rating as the Ratings Group that has the greatest Ratings Group Deficiency (the “Most Deficient Ratings Group”), (ii) if (A) two or more Relevant Ratings have been assigned to it, the highest of those Relevant Ratings is equal to or lower than “BB+” or “Ba1”, as applicable, and (B) if one Relevant Rating only has been assigned to it, such rating is equal to or lower than “BB+” or “Ba1”, as applicable, and such entity is not on a positive ratings watch, (iii) it is from the sector with the greatest Sector Deficiency of those sectors (A) represented in the Most Deficient Ratings Group and (B) that have entities in them that satisfy sub-paragraph (iv), and (iv) it is not included in the then current HY Index and has not previously been determined to be subject to inclusion in the new HY Index;

(i) following its determination in Section 3.7(h) above, the Administrator shall repeat the process specified in Section 3.7(h) until such time as the number of entities that shall be included in the new HY Index in accordance with Section 3.7(h) is equal to the aggregate number of entities excluded from the new HY Index in accordance with Section 3.7(g) above.

3.8 After the composition of the new HY Index for the next six-month period has been finalized, the Administrator will identify a single reference obligation of each entity in the HY Index , with a reference obligation payment priority chosen by the Administrator, based on the Reference Entity Database (“RED”). In the event that a reference obligation of the relevant payment priority for an entity in the new HY Index is not listed in RED, the Administrator will select the most liquid of the reference obligations associated with such entity based on the market risk activity in relation to such entities and such obligations during the six month period prior to the last Friday of (i) the February preceding the new Roll Date if such Roll Date is due to occur in March or (ii) the August preceding the new Roll Date if such Roll Date is due to occur in September, in each case as published on the DTCC Trade Information Warehouse (market risk activity for the Top 1000 names), which for the avoidance of doubt, may be a subordinated obligation of the entity or, if the most liquid Credit Derivative Transaction referencing the relevant entity does not specify a reference obligation in respect of such entity, then no reference obligation shall be associated with such entity. Once the Administrator has identified a single reference obligation for each entity in the HY Index (or determined that no reference obligation will be associated with any such entity), it will undertake all reasonable efforts to procure the review of the documentation relating to any such reference obligation on the same basis as if such reference obligation were in RED and notify Eligible HY Members of a preliminary list of such identified reference obligations for each entity and entities in respect of which it has determined that no reference obligation will be associated. If within one (1) Business Day after notifying the Eligible HY Members of such list, at least three Eligible HY Members have informed the Administrator in writing of an objection to any determination specified on such list, the Administrator will submit the matter to the Eligible HY Members for a vote. If (i) a Quorum Majority do not approve of such determination and no other course of action is approved by a Quorum Majority or (ii) if the Administrator cannot procure the review of the reference obligation documentation and a Quorum Majority does not approve of the inclusion of such reference obligation without such review, such entity will be excluded from the new HY Index as if it were being excluded in accordance with Section 3.10 below.

3.9 No later than six (6) Business Days prior to the Roll Date, the Administrator will also determine the composition of the “B” sub-index that shall be comprised of each entity in the new HY Index with a rating of “B-”, “B”, “B+”, “B3”, “B2” or “B1” (as applicable) (determined in accordance with Section 3.2(c) above) and the “BB” sub-index that shall be comprised of each entity in the new HY Index with a rating of “BB-”, “BB”, “BB+” “Ba3”, “Ba2” or “Ba1” (as applicable) (determined in accordance with Section 3.2(c) above).

3.10 On any day up to, and including, the date falling four (4) Business Days prior to the Roll Date of a new HY Index, the Administrator may determine that any entity that:

(a) is in the then current HY Index; or

(b) the Administrator had previously determined in accordance with Section 3.4 shall be included in the new HY Index,

fails any of the criteria specified in Section 3.1(a), Section 3.1(b), Section 3.1(d) or Section 3.1(e) and shall be excluded from the new HY Index.

3.11 If the Administrator determines that any entity shall be excluded from the new HY Index in accordance with Section 3.10 then the entity that is not in the then current HY Index with the highest ranking in the HY Liquidity Rankings, that is in the same sector and Ratings Group as the entity that shall be excluded and that has not previously been determined to be subject to inclusion in the new HY Index shall be included in the new HY Index as a replacement for such entity.

3.12 Not later than three (3) Business Days prior to the Roll Date of a new HY Index (the “Fixed Rate Determination Date”), the fixed rate for each maturity of the new HY Index and for the maturity for each sub-index of the new HY Index will be determined by the Administrator and the Administrator will publicize such fixed rates.

3.13 On any day up to, and including, the date falling two (2) Business Days prior to the Roll Date of a new HY Index, the Administrator may determine that any entity that:

(a) is in the then current HY Index; or

(b) the Administrator had previously determined in accordance with Section 3.4 shall be included in the new HY Index,

fails the criteria specified in Section 3.1(c) and shall be excluded from the new HY Index.

3.14 If the Administrator determines that any entity shall be excluded from the new HY Index in accordance with Section 3.13 then the entity that is not in the then current HY Index with the highest ranking in the HY Liquidity Rankings, that is in the same sector and Ratings Group as the entity that shall be excluded and that has not previously been determined to be subject to inclusion in the new HY Index shall be included in the new HY Index as a replacement for such entity.

3.15 Two (2) Business Days prior to the Roll Date of a new HY Index, the Administrator will publish to the Eligible HY Members a draft of the annex for the HY Index and each sub-index along with the weighting and final reference obligations (if applicable) for each entity within the new HY Index and each new sub-index. The final annex for a new HY Index and each sub-index will be published after 5:00 p.m. on the Business Day immediately preceding the Roll Date of such new HY Index.

3.16 Products based on the new HY Index will begin trading on the Roll Date of such new HY Index.

4 CHANGES TO AN HY INDEX

4.1 Removal of a Reference Entity. In the event that three or more Eligible HY Members request that the Administrator remove an entity from an HY Index (specifying in writing the reason for such proposed removal), on the Business Day on which the Administrator receives the third such request, or on the following Business Day if such request is received after 11:00 a.m., the Administrator will solicit votes from each Eligible HY Member to indicate whether such Eligible HY Member agrees that such entity should be removed from such HY Index. In the event that a Quorum Majority agrees that the entity should be removed from such HY Index, the Administrator shall remove such entity from such HY Index and any relevant sub-indices and immediately publicize such removal and the resulting new composition of such HY Index and any relevant sub-indices with effect from the Business Day immediately following such publication. In addition, the Administrator will publish a new version of the annex for such HY Index and any relevant sub-indices in which the weightings of the remaining entities in such HY Index or sub-indices will remain constant and the removed entity will have a weighting of zero.