Markit MCDX
A Primer

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This document is an overview of single name municipal bond CDS, and highlights the main characteristics of MCDX.

Introduction

Markit MCDX is an index comprised of 50 CDS contracts referencing municipal issuers as the Reference Entity. Launched in May 2008, it represents the next evolution in Markit' synthetic credit indices, joining corporate, sovereign, asset backed, commercial mortgage backed, and loan CDS indices.

In the relatively calm municipal bond market, the creation of a synthetic credit index is a significant development, recognizing credit as a key component of municipal issuers' risk.

MCDX is supported by all major market players:

- Markit – Markit owns and operates the index, including marketing, operation, and calculation. Markit will publish prices daily on its website
- Dealers – Major dealers have been trading MCDS for the last few years and are committed to supporting MCDX, A minimum of 6 dealers will trade MCDX on May 6th
- DTCC – DTCC is actively engaged in making MCDX trades part of its Deriv/SERV and Warehouse platform. Although MCDX trades will not be DTCC eligible on the first day of trading, they are expected to be eligible in the 4-6 weeks post launch
- Buy-side institutions – Demand for such an index has been driving the need to build a cost-effective trading vehicle, which is also expected to generate additional transparency and liquidity in the single name space.

MCDS Review

Single name CDS confirmation on municipal reference entities has been available since 2004. MCDS trades reflect the different types of cash muni bonds, and refer to four different obligation types: Full Faith and Credit, General Fund Obligation, Revenue, and Moral Obligation Liability. Below is a review of the ISDA Definition of each Obligation Liability and a brief review of what the definitions cover.

Full Faith and Credit Obligation Liability (FFC)

- Backed by full faith and credit of the Reference Entity
- And is payable from ad valorem taxes required to be levied on all taxable property within the taxing jurisdiction of the Reference Entity for the payment thereof, whether or not subject to any applicable constitutional, statutory and other legal limits with respect to the amount of such taxes that may be so levied

FFC are most often referred to as GO. The debt is payable from all available revenues and resources of the Reference Entity, and can be repaid by the issuer's taxing power. Before these bonds are issued they have to be approved by the board/legislature of the entity.

General Fund Obligation Liability (GFO)

- Any liability of the Reference entity that is payable from the general fund of the Reference Entity and that is not a Moral Obligation Liability. For avoidance of any doubt, a Full Faith and Credit Obligation Liability that is payable from the general fund of the Reference Entity shall also constitute a General Fund Obligation Liability

GFO are similar to FFC but the municipality doesn't have the power to increase taxes to pay the bondholders. They are rare. They are issued for example in California to fund pension liabilities (for which the state doesn't have the authority to raise taxes to close the unfunded gap). Issuing these bonds doesn't require the board approval.

Revenue Obligation Liability (RO)

- Any liability of the Reference Entity that is payable, in whole or in part, from the same source of revenues as the Reference Obligation that is not a Moral Obligation Liability
- Need to specify a CUSIP to identify source of revenue and priority of payment

RO are a kind of project financing. The bondholders have recourse only against a certain revenue stream. It is entirely possible for one project to have different bonds with different tiers issued. The MCDX documentation contains a new defined term – Reference Credit, which is a combination of Reference Entity (guarantor) and Reference Obligation (defines the obligation type, revenue source, and lien level).

Some entities like NYC MTA are separate legal entity, so the reference entity is NYC MTA. However airports, electrical grids, buildings, and others owned and operated by cities will have the reference entity as the city/state (city of Detroit Airport is City of Detroit).

Moral Obligation Liability

- Any liability of the Reference Entity that is contingent upon an appropriation being made by the governing body or other official of the Reference Entity

Although Moral Obligation Liability are not included in MCDX, they are issued by municipal entities. The obligation of the municipality to repay the bondholders is subject to legislature approval of paying back the bond (which means that theoretically a legislature could stop making payment on a bond to close the budget deficit) on an ongoing basis. This is designed to avoid some of the restrictions of a FFC, such as receiving board approval. The obligation to repay is moral, as it would indirectly impact how the municipality is viewed and its ability for further borrowing. In addition rating agencies have stated that would an entity default on its moral obligation liability, it would downgrade its GO below investment grade. Moral Obligations are generally rated one notch lower than Full Faith and Credit.

Comparing the overall credit worthiness of the different types, full faith and credit obligation liability is the safest as they are backed by the full taxing authority of the issuer, whereas revenue obligation liability are riskier as tied to a specific revenue stream. Therefore in general a single name CDS on a FFC will trade tighter than one of a Revenue bond.

Volume has historically been low, but has seen an increase in late 2007/early 2008, caused by the challenges of the monolines, the continuing credit crisis, the housing downturn, and questions surrounding the health of the economy. Current demand is based on hedging cash positions.

MCDX Characteristics

The financial and economic conditions of the US economy and that of its municipalities have lead to a demand for an index of MCDS that can be traded easily, with narrow bid-ask spreads, and two-way liquidity.

Demand has been coming from traditional and non-traditional municipal bond players, including mutual funds, hedge funds, and overseas investors.

For investors that are long the US economy, the ability to hedge their positions with MCDX is attractive. As the US economy continues to weaken, municipalities' sources of income are decreasing: real estate taxes, income taxes, and sales taxes. The current economy is in a housing downturn (decreasing real estate taxes), unemployment rising (lower income taxes), and low consumer confidence (less propensity to spend money by consumers, which represent 70% of total economic activity in the US, therefore lower income tax receipts for municipalities).

MCDX will start at series 10, to mimic the existing on-the-run Markit credit indices (CDX, LCDX). The initial series will include 50 equally-weighted names (a combination of reference entity and obligation type). The table below shows the basic characteristics of MCDX:

Reference entities	50 Excludes Tobacco and Healthcare issues
Reference obligations	Revenue, General Fund Obligation, Full Faith & Credit At least $250 million uninsured outstanding debt
Deliverable obligations	Senior of equal or higher ranking in cap structure
Ratings	Be rated by the Moody's, S&P and Fitch (the "Rating Agencies") as follows: - when rated by all three Rating Agencies, the median rating must be investment grade; - when rated by two of three Rating Agencies, both ratings must be investment grade, and - when rated by one of three Rating Agencies, the rating must be investment grade.
Credit events	Failure to pay Restructuring

Coupons payment dates	March 20, June 20, September 20, December 20
Roll dates	April 3, October 3
Assumed Recovery Rate for upfront calculation	75%
Tenor	3, 5, 10 years
Settlement	Auction Settlement Fallback Settlement is Physical Settlement

A few points we should highlight from the table above:

- The reference obligations will be uninsured to represent the unencumbered credit quality of the underlying name. However in case of default there is no restriction as to the insured nature of the bond (although an insured bond won't be the cheapest to deliver)
- The initial focus of MCDX is on investment grade, liquid names.
- There are 50 names included in the index to reflect the limited depth in the single name market.

The names included in the initial MCDX series were selected by a group of leading dealers in the MCDS space, based on institutional investors' interests, cash market activity, rating breakdown, geographical dispersion, and single name liquidity.

Daily pricing will be posted on Markit's website.

Roll Timeline

The index will roll into a new on-the-run series on April 3rd and October 3rd. The roll process is similar to other Markit credit indices. Composition of the index is determined by dealer polls.

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

- Exclusion: a number of entities are excluded from the index based on a dealer poll. Taken into consideration are corporate actions on underlying reference credits, municipalities governmental actions, ratings changes, and lack of liquidity
- Inclusion: New names are added to the index to keep the number of constituents the same. Inclusion is decided by a dealer poll, taking into consideration liquidity, single name volumes, geographical and rating dispersion, and cash market activity
- Reference obligation assignment: For each entity in the new index, a suitable reference obligation is identified by Markit, with input from the dealers
- Fixed Rate determination: Dealers send Markit an average spread for each index and maturity. The median becomes the fixed spread on the index.
- 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

A complete timeline is available in Appendix 1.

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Trading Convention

The index will launch with a fixed coupon, which protection buyers (sellers of the index) pay quarterly. Correspondingly, protection sellers (buyers of the index) receive the coupon. The index trades on a spread basis. Similar to bonds, if the spread goes down, the price goes up and vice versa. Buyers of protection receive compensation on the principal (excluding accrued interest) if an entity named in the contract defaults on its municipal obligations. The compensation will be par minus recovery either via the protection seller paying par in return for gaining possession of the bond.

To compensate investors for the change in value of the index over time, an upfront payment is made at time of trade to account for the change in present value of the index since inception. For example if the index launches with a spread of 35, and if an investor buys protection when the index trades at 45, you will pay the present value difference between the two spreads at settlement to your counterparty. When you later exit your position, you will again pay or receive compensation depending on whether the index is trading above or below the fixed coupon.

Credit Event

If a credit event (failure to pay and restructuring) occurs, a new version of the index will be issued with the defaulted entity removed and with a reduced notional (assuming 50 names in the index, the new version will contain 49 names and will have a revised notional of $9.8 million rather than $10 million). Historically until the credit event is settled, both versions of the index may trade – one with and one without the defaulted entity. We expect the new MCDX version to only started trading after the recovery rate is set.

Auctions are expected to take place if Credit Events occur (similar to Markit CDX), but it is expected that a hardwired cash settlement mechanism will be introduced in the coming months.

Physical settlement entails the protection buyer delivering the debt and receiving par on the portion of the index made up of the defaulted reference entity. The protection seller who took delivery of the debt is left holding the defaulted asset. This is the traditional method of settlement, but runs into problems when the notional of the outstanding issue is less than the CDS outstanding. Additionally, every counterparty might not be able to take receipt of the bonds. 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 makes an attractive choice. The mechanics of cash settlement are simpler and faster than physical settlement, where an actual loan/bond trade takes place.

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. 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. For more information on the auctions please see the primer on www.creditfixings.com.

Once a credit event is announced, ISDA coordinates the major participants in the market and agrees an event determination date. Coupons stop accruing on the defaulted entity on this date. Markit and Creditex will run the auction and post the results and protocols on www.creditfixings.com.

An auction will most likely be announced for a date approximately three to four weeks after a credit event. In the auction a recovery price is set.

Assuming a recovery of 70 cents in the dollar, all protection buyers are compensated 30 cents in the dollar on the defaulted name. For MCDX contract holders, where each entity has a 2% weighting in the index, they are compensated 2% * 0.3 multiplied by the notional of the LCDX trade. For a $10m trade, this is $60,000.

A complete Credit Event Auction Guide is available at

http://www.creditfixings.com/information/affiliations/fixings/contentParagraphs/00/document/Credit%20Event%20Auction%20Primer.pdf

Markit RED for Municipals

Markit RED ('RED') is the market standard Reference Entity Database providing critical reference data which is used to document and confirm credit derivative transactions. RED reduces legal risk and increases operational efficiency by verifying reference entity and reference obligation information. RED data helps reduce errors when affirming or confirming single name, index or basket trades and ensures correct representation of the underlying credit risk. RED has been fully integrated with all widely used inter-dealer broker, trade execution, trade processing and market data platforms.

RED is the official producer of the annexes for the traded credit indices and sub-indices. These credit index annexes are produced using legally verified data sourced from RED and are used by market makers, dealers and many buy-side institutions to confirm their index trades.

MCDX reference data, including constituent-level information, will be available from RED via an XML file. This file can be retrieved directly from the RED Website or via an automated download, and is available to full Markit RED subscribers.

RED will allow clients to have legally verified, key municipal issuer and bond data at their fingertips. A unique six-digit code, known as a RED Entity Code, has been assigned to the reference entities that comprise the MCDX. In addition, a unique nine-digit code, known as a RED Pair Code, has been assigned to the reference obligation associated with each of these entities.. These codes allow clients to link to a vast amount of static reference data relevant to the MCDS market in order to facilitate risk management and post trade processes.

Conclusion

The MCDX is a significant evolution in the municipal bond market. It will allow traditional municipal bond investors to hedge their cash positions, and new entrants to the market to generate increased liquidity.

The index was designed by leading market participants, and is expected to grow in importance in the muni universe, as credit analysis becomes more prevalent even in investment grade muni investing.

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Appendix 1 – MCDX Roll Timeline