The Handbook of Municipal Bonds
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CHAPTER 41

Municipal Collateralized Debt Obligations

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Given their strong credit profile and historical performance, municipal bonds (*munis*) would seem ideal collateralized debt obligation (CDO) collateral. But munis have only made a couple appearances in CDOs because traditional CDOs cannot pass the tax-exempt interest of munis on to CDO investors. And the cost of a before-tax coupon to CDO debt holders leaves little "arb" for CDO equity investors. However, in September 2006, the first 100% cash muni CDO hit the market: Non-Profit Preferred Trust I (NPPT).

We also thank David Gilliand, CFA and Vaibhav Kumar, of UBS municipal bond trading and CDO structuring, respectively, for providing us with their expertise.

By using a structure that differed slightly from that of a traditional CDO, and focusing on a niche within the muni market, NPPT paved the way for future tax-exempt muni CDOs.

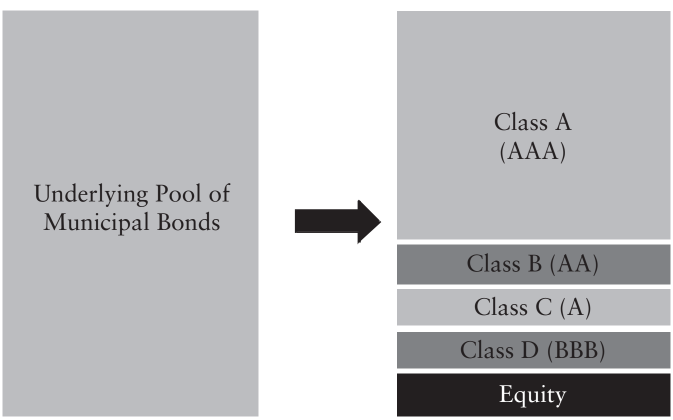
In this chapter, we discuss muni CDOs. Muni CDOs are likely to focus on issues in three sectors: nonprofit corporations, limited recourse housing, and enterprise financing. Nonprofit corporations are tax-exempt entities according to Section 501(c)(3) of the IRS code (why they are often referred to as 501c3s). The subsectors within this sector that are likely to be found in CDOs are healthcare, higher education, charter schools, private primary and secondary schools, and nontraditional, nonprofit corporations that includes community service providers, cultural institutions, charitable organizations, and research institutes. Within the enterprise financing sector, the following are likely to be included in a CDO: airport special facility bonds, tobacco settlement bonds, industrial revenue bonds, and tax increment, special tax, and special assessment bonds.

CDO BASICS

A CDO begins with its assets, which for a muni CDO is a pool of municipal bonds. On the other side of the balance sheet, a CDO's liabilities have a detailed and strict ranking of seniority, going up the CDO's capital structure from equity or preferred shares, to subordinated debt, mezzanine debt, and senior debt tranches. Exhibit 41.1 shows the typical capital structure of a CDO.

Within the stipulation of strict seniority, there is great variety in the features of CDO debt tranches. The driving force for CDO structurers is

EXHIBIT 41.1 Typical CDO Structure



to raise funds at the lowest possible cost. This is done so that the CDO's equity holder, who is at the bottom of the seniority ladder, can get the most residual cash flow.

Purposes

CDOs are created for one of three purposes: balance sheet, arbitrage, or origination. These purposes also dictate how a CDO acquires its assets.

In a *balance sheet CDO*, a holder of CDO-able assets sells the assets to a CDO, thus removing the assets from the holder's balance sheet. This type of CDO is attractive to banks seeking to remove assets from their balance sheet and lower the bank's regulatory capital requirement.

In an *arbitrage CDO*, assets are purchased in the market place from many different sellers and put into the CDO. In this case, the CDO is another means, along with mutual funds and hedge funds, for a money manager to provide his service to investors. The difference is that instead of investors sharing the fund's return in proportion to their investment, investor returns are also determined by the seniority of the CDO tranches they purchase.

The final reason for creating a CDO is *origination*, which, in the case of a muni CDO, allows smaller-size municipalities and special purpose entities to issue bonds directly to the CDO simultaneous with the CDO's issuance of its own liabilities. The muni bonds would not be issued but for the creation of the CDO to purchase them. Non-Profit Preferred Trust I is an origination CDO. The manager has originated loans to 501(c)(3) nonprofits to be placed into the CDO.

These three purposes differentiate CDOs on the basis of how they acquire their assets and focus on the motivations of assets sellers, asset managers, and muni note issuers. But from the point of view of CDO investors, all CDOs have a number of common purposes, which explain why many investors find CDO debt and equity attractive.

One purpose is the division and distribution of the risk of the CDO's assets to parties that have different risk appetites. Thus, a AAA investor can invest in speculative-grade assets on a loss-protected basis and a BB investor can invest in AAA assets on a levered basis.

For CDO equity investors, the CDO structure provides a leveraged return without some of the nasty consequences of borrowing via repo from a bank. CDO equity holders own stock in a company and are not liable for losses of that company. Equity's exposure to a CDO asset portfolio is thus capped at the cost of equity minus previous equity distributions. Instead of short-term bank financing, long-term financing via the CDO is locked in at fixed spreads to LIBOR.

For CDO debt investors, CDOs offer spreads that are usually higher than those of alternative investments, particularly for CDOs rated below AA. And finally, the CDO structure allows investors to purchase an interest in a diversified portfolio of assets. Often these assets are not available to investors except through a CDO.

Cash Flow Waterfalls

The specifics of a CDO's cash flow structure determine the risks taken on by various classes of CDO debt and equity and thus the return profiles of those classes. To understand the cash flow structure of a CDO, one must understand *cash flow waterfalls*. There are two waterfalls in a cash flow CDO: collateral interest and collateral principal. The cash flow waterfalls determine the order in which CDO creditors get paid and thus enforce the seniority of one creditor over another.

Embedded in the waterfalls are *overcollateralization* (OC) *tests*, which can divert cash from subordinated creditors and redirect it to senior CDO creditors. The key to these tests is that defaulted assets are excluded or severely haircut (counted at a fraction of their par amount) in the definition of asset par:

$$\text{Class A OC test} = \textit{Asset par/Class A par}$$
$$\text{Class B OC test} = \textit{Asset par/(Class A par + Class B par)}$$
$$\text{Class C OC test} = \textit{Asset par/(Class A par + Class B par + Class C par)}$$

and so on, for all the debt tranches

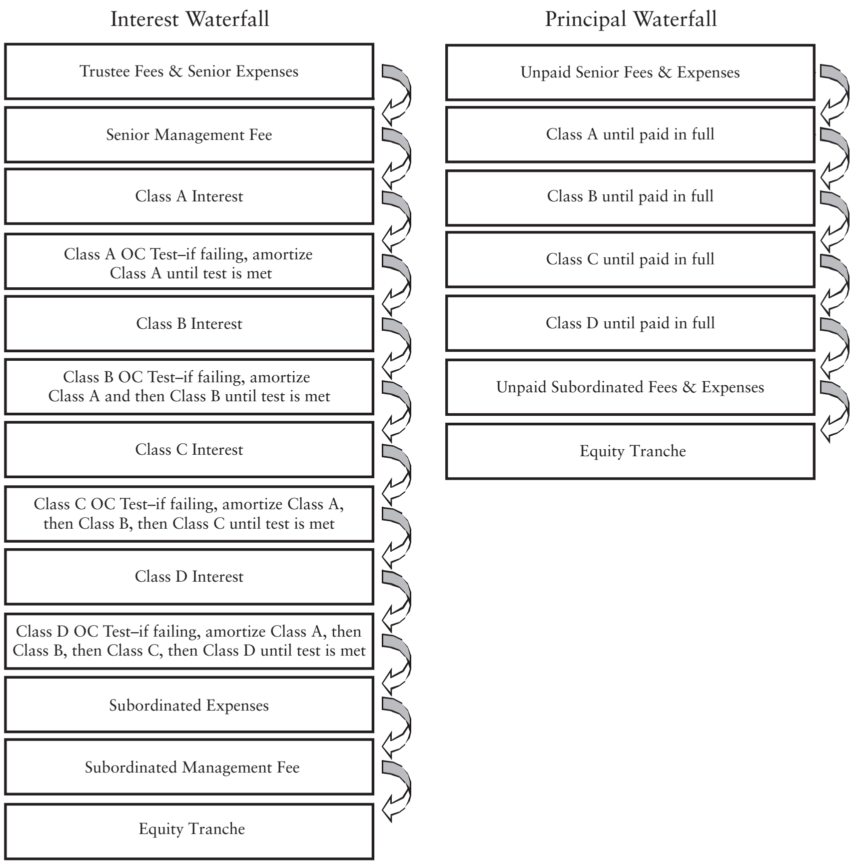
To pass these tests, par coverage must be greater than some percentage, perhaps 120% for the Class A OC test, perhaps only 105% for the Class C OC test. The more defaulted assets a CDO has, the more likely it will fail one or more of these tests. Failure of a par coverage test requires that cash be withheld from paying interest on lower-ranking debt tranches. Instead, cash must be used to pay down principal on the CDO's seniormost debt tranche.

Exhibit 41.2 shows simple cash flow waterfalls in which collateral interest and principal is applied to CDO creditors in the order shown.[1]

Diversion of collateral interest can greatly increase protection to senior CDO tranches. Debt tranches can receive all their principal even if collateral losses surpass the amount of subordination below them in the capital structure. The benefit of coverage tests to senior tranches depends on how soon

[1] Readers familiar with CDOs will notice that the principal waterfall does not show principal being diverted to pay interest to senior tranches. This is unique to muni CDOs and is discussed further later in this chapter.

EXHIBIT 41.2 Interest and Principal Waterfalls



Source: UBS CDO Research.

the tests are breeched. The earlier the diversion begins, the more collateral interest can be diverted over the collateral's remaining life. The amount of cash that can be diverted is smaller if the test fails late in the life of the deal.

CDO Equity in a Portfolio

CDO equity investors should consider the following when analyzing a potential investment:

1. The collateral's promised yield.
2. The CDO's funding cost.

3. The amount of leverage in the CDO structure.
4. The cash flow structure of the CDO.
5. The influence of the CDO manager.
6. The collateral's default and recovery performance.

History makes little difference with respect to most factors impacting CDO equity returns. Only current levels matter. So predicting the performance of a new CDO requires modeling the CDO's collateral spread, funding cost, leverage and structure, and then testing equity returns under different collateral default and recovery assumptions.

This is nothing more than what bankers present in every CDO pitch book. We simply recommend looking at the default and recovery scenarios provided, mindful of the historic default experience of the CDO's assets and current underwriting standards. This, we hope, sounds like a very ordinary, even mundane, suggestion.

MUNI CDOs

As we stated at the outset of this chapter, the first 100% cash tax-exempt muni CDO was issued in September 2006: Non-Profit Preferred Trust I. While NPPT has paved the way for future muni CDOs, not all muni CDOs will look like NPPT. So our discussion on muni CDOs in the remainder of this chapter is based almost entirely on how we believe future muni CDOs will be structured.

A New Dance STEP

The goal of future muni CDOs is for debt tranches to be exempt from federal taxes. Each tranche must be treated as equity for tax purposes, and to do so, muni CDOs must be structured slightly differently from other types of CDOs. Tax exemption is currently achieved by structuring the CDO as a Structured Tax-Exempt Pass-Through or STEP. The main difference is the principal waterfall.

In a typical CDO, collateral principal payments can be diverted from the junior debt tranches to pay unpaid interest on senior debt tranches. But muni CDOs cannot do this. Instead, collateral principal payments may only be used to pay principal payments in order of seniority. As such, the subordination levels of a muni CDO are slightly higher than what they would be if the CDO could divert principal to pay interest. This lowers the CDO's leverage and therefore lowers its equity return. However, preserving the tax benefit of the muni CDO collateral outweighs lower equity leverage on an after-tax basis.

In another difference with most CDOs, muni CDOs are set up as *Delaware partnerships*, rather than as Cayman Island corporations.

Collateral and Capital Structure

Muni CDOs seeking tax-exempt status will be restricted to 100% cash deals. While credit default swaps on munis exist, their premiums are taxable income. Likewise, income earned on interest rate swaps is also taxable, so muni CDOs will not be able to hedge any mismatch in interest rates. Therefore, like most munis, most muni CDO tranches will offer fixed coupons. Muni CDOs will also avoid munis whose distributions are subject to alternate minimum tax.

It is envisioned that every muni CDO tranche will have a CUSIP, pay interest semiannually, and trade and settle like a normal muni bond. Accountants will provide tax reporting on muni CDO tranche distributions quantifying tax-exempt interest, capital gains, and taxable interest (expected to be zero in a muni CDO).

Coupons on muni CDO collateral portfolios will vary greatly. The first muni CDO with nonprofit underlyings had a weighted average coupon on its collateral of MMD + 230–240. Higher-quality muni CDO portfolios will have WACs under MMD + 100 basis points. To provide an idea of how a muni CDO might look, we tranched an example muni CDO with higher-quality assets, as shown in Exhibit 41.3.

SUMMARY

In this chapter, we reviewed the basics of a traditional CDO structure. Finally, we reviewed muni CDOs and their unique attributes.

At this point, muni CDOs are a developing product, with only two deals completed as of May 2007. Rating methodologies and surveillance are still being hashed out, as the rating agencies look to combine the work

EXHIBIT 41.3 Sample Muni CDO Capital Structure

Rating	Size ($ millions)	Subordination
AAA	344	14%
AA	16	10%
A	12	7%
BBB	8	5%
Equity	20	

of their public finance and CDO analysts. While we believe several deals will follow in the pipeline, muni CDOs will be a small niche product in the overall CDO market. Nonetheless, muni CDOs create a unique opportunity for both CDO investors and muni investors to access a new asset class while still enjoying the benefits of tax exemption.