

# The CDO Product

## Overview

Collateralized debt obligations, or CDOs, are structured vehicles that are similar to leveraged closed-end funds. As discussed below, the majority are cash flow structures, a fair number are synthetic structures, and some use a market value structure. A majority of all CDOs are actively managed and invested in different asset classes. At the core of the CDO is a bankruptcy-remote, special-purpose entity (SPE) that issues securities to investors in the form of several classes that are tranching into differently rated and some unrated securities. Each class of securities represents a different level of risk and reward associated with the asset pool. The most senior securities have credit ratings higher than the average ratings of the collateral pool, with lower tranches being rated below the seniors. The first-loss tranche is equity (or preferred shares) that is typically not rated.

The proceeds from the offering are typically used to purchase a portfolio of assets, or may be held in the SPE. Should some of the assets fall into default or trigger some of the transaction covenants, excess spread is first used to cover any losses. However, there might not be sufficient assets to cover these losses, and the lowest-level, or more junior securities may take a loss. Payments to each of the liability classes are dictated by a stipulated priority of payments that reallocates the risk and rewards associated with the assets. This allows the CDO issuer to tailor the liabilities to meet the risk/return profiles of a broad range of investors and to attract additional groups of investors.

Since their creation in the late 1980s, CDOs have evolved into three major classifications: cash flow CDOs; synthetic CDOs; and market value CDOs. Standard & Poor's has rated CDOs from the inception of the asset type and continues to rate all three major classes of CDOs and their subgroups. Below is a brief explanation of the three major classifications.

### **Cash Flow CDOs**

Cash flow CDOs are structured vehicles that issue different tranches of liabilities and use the net proceeds to purchase the pool of assets. The cash flows generated by the assets are then used to pay back investors generally in sequential order from the senior investors that hold the highest-rated (typically 'AAA') securities, to the "equity investors" that bear the first-loss risk and generally hold unrated securities. To compensate for the risk associated with bearing the first-loss position, the equity investors are generally paid most of the residual interest and may achieve a high annual rate of return. The money invested by the noteholders is used by the SPE to purchase the assets and cover the costs associated with executing the transaction. The par value of the securities at maturity is used to pay the notional amounts of the liabilities.

### **Synthetic CDOs**

Synthetic CDOs are structured vehicles that use credit derivatives to achieve the same credit-risk transfer as cash flow CDOs, without physically transferring the assets. The risk is typically transferred to the investors by the entity holding the physical assets. The investors are the sellers of credit protection, since they take the risk of loss should the asset default. The institution holding the assets is the credit-protection buyer, since the risk of the loss was transferred to the investors.

In its simplest structures, the SPE issues notes to the investors and sells credit protection on a reference pool of credits. The money paid by the investors is then held by the SPE to either repay the investors or to pay the buyer of the credit protection should an asset in the reference pool default. The credit-protection buyer pays a periodic premium to the SPE that, together with the interest earned on the money held by the SPE, is used to pay interest to the investors. If and as assets in the reference pool default, the SPE settles with the credit-protection buyer and makes payments. At the end of the transaction, the remaining money held by the SPE is paid back to the investors. Synthetic CDOs can also be used to "bundle" corporate or other credit exposure, not only the risks of traded debt instruments. As will be explained later, synthetic CDOs can be structured differently, may hold a combination of derivative and physical assets, and may be fully funded, partially funded, or unfunded.

### **Market Value CDOs**

Market value CDOs are similar to cash flow CDOs, but the SPE does not issue liabilities based on the par

of the assets. Rather, the SPE issues liabilities based on an advance rate associated with each type of asset purchased. The advance rate is specific to each asset and to each tranche of liability, and is based on historical price or return volatility for each asset type. The collateral pool is then marked to market on a periodic basis, and if the aggregate pool marks breach the pool advance rates, the collateral manager must sell collateral and pay down notes to bring the advance rates back in compliance. Market value transactions can be based on traditional corporate bonds and loans, or on instruments such as private equity or shares of hedge funds.

Cash flow CDOs and synthetic CDOs have more in common with one another than with market value CDOs. This is because the payment of liabilities is strongly dependent on the credit risk of the underlying assets in these two structures, whereas the performance of market value CDOs is based upon the market pricing and returns of assets. Given their similarities, the criteria overlap between cash flow and synthetic CDOs is greater than its overlap with the market value type. This publication covers only Standard & Poor's cash flow and synthetic CDO criteria. The criteria for market value transactions can be found on RatingsDirect, Standard & Poor's Web-based credit analysis system, at [www.ratingsdirect.com](http://www.ratingsdirect.com). It is also available at [www.standardandpoors.com](http://www.standardandpoors.com).

Cash flow and synthetic CDO issuance is driven either by opportunities in capital market dislocations (arbitrage) or regulatory capital relief motivations. Arbitrage CDOs are designed to capture the positive spread between relatively higher-yielding assets and lower-cost, more highly rated liabilities. The assets in arbitrage deals are typically acquired by the collateral manager in the open market, and traditionally have been high-yield assets with large spreads. The difference between the yield on the assets and the rated liabilities is used to compensate the equity investors that take the first-loss position.

In contrast, balance sheet CDO issuance is motivated by the desire of the sponsoring institution to reduce regulatory capital requirements, increase lending capacity, lower the cost of funding, manage risk, and/or diversify funding sources. This is accomplished either directly through the sale of assets off the institution's balance sheet to the CDO, or by transferring the risk to the CDO through the use of synthetic securities. The sponsoring institution typically has retained all or a portion of the equity interest as a means of increasing return on equity.

The CDO market started in the U.S., but has become a truly global market in terms of both investors and sponsors. The early deals in the U.S. were followed by deals in Asia, but with the Asian economic downturn of the late 1990s the number of such deals dropped drastically. Asia investors, however, continued to invest in non-Asian CDOs throughout this downturn. Asian CDO deals have now started to come back and the market is expected to grow rapidly.

The European CDO deal market began to develop in the late 1990s and has seen tremendous growth over the last few years. As with the other markets, this growth is driven by both a desire to capitalize on spread dislocation and by risk/balance sheet management considerations. The growth in the CDO markets has also been strongly driven by the implications of the Basel accord of 2001 on bank capitalization requirements. As the accord is implemented, financial institutions will no doubt continue to view CDOs as an important tool for meeting the goals of the accord.

## **Collateral and Deal Types**

From the inception of CDO technology through much of the following decade, CDO issuance was based in the majority of cases on portfolios of corporate bonds and leveraged loans. As the investor base expanded, emerging markets CDOs (EMCDOs) also appeared, consisting of sovereign debt and emerging markets corporate debt. The generic term CDO refers to those investment entities that are backed by a portfolio of bonds or loans, or a combination of both. In the infancy of the market, CDOs backed primarily or exclusively by bonds were referred to as collateralized bond obligations (CBOs), while those issuances backed primarily or exclusively by loans were commonly referred to as collateralized loan obligations (CLOs).

By the late 1990s, the market evolved into more diverse product applications including various asset-backed securities and different debt types. In 1999, the CDO market expanded with the inclusion of project finance loans and bonds, forfaiting trade receivables, private placements, and real estate asset-backed securities in CDOs. In 2000, the pace of including new asset classes in CDOs increased, with traditional ABS, CDOs, REITs, and bank tier 1 debt all being included in CDOs as primary assets. At the

end of 2000, the market also saw the resurrection of distressed debt CDOs, where the assets consist of deteriorating bank loans similar to the Grant Street Bank transaction done in the late 1980s. In 2001, the market again saw new innovations, with Standard & Poor's publishing criteria for CDOs of municipal debt obligations (see "*Municipal CDOs*" in the "*Special Topics*" section).

The repackaging of ABS and CDO subtranches into new CDOs is now so widespread that CDOs have become major investors in the subtranches of such ABS. The motivations of the different parties to create or invest in the CDO markets are explained later in further detail.

Most, if not all, CDO-type transactions can be executed in synthetic form. The challenge, if executed in synthetic form, is whether the derivative form of risk transfer can be captured properly in existing or modified documentation. The analytic exercise is to work with the documentation and synthetic structure to enable the risk of loss with regard to the synthetic CDO to be rendered comparable to the cash CDO. Synthetic CDOs were first presented primarily for balance sheet CDO transactions, but more recently the major growth has been in the managed arbitrage synthetic CDO and the synthetic CDO of ABS products.

In addition to different types of collateral, the CDO market is segmented between investment-grade and high-yield deals. The investment-grade CDO deals are made up of either investment-grade (e.g., 'BBB' and 'A' rated ABS) corporate securities or ABS collateral repackaged in a CBO. These pools can range from having an average rating of 'BBB' all the way up to 'AAA', depending on where the optimum risk/reward can be achieved and the motivation behind the transaction. While the spread on ABS securities is much less than on high-yield securities, an efficient arbitrage structure may be achieved due to the collateral having a much lower probability of default. Such structures thus have generally less equity and are more leveraged.

As mentioned previously, the majority of CDOs are actively managed. The asset selection and substitution decisions fall under the purview of a collateral manager. This manager is also responsible for the ongoing trading activities during a reinvestment period to realize gains and minimize losses, and maintain the portfolio within the constraints of the transaction structure. As a result of the latitude afforded the collateral manager to actively adjust the composition of the collateral pool to take advantage of market opportunities and to anticipate or respond to credit events, the manager's expertise with the assets and ability to manage within established constraints is paramount to the success of the CDOs. Market consensus is that the manager is the most important factor in a performance of a CDO. The role and importance of the collateral manager are fully explained in the section titled "*CDO Manager Review*".

The CDO market is not, however, limited to only actively managed transactions. Some transactions, referred to as static pool CDOs, consist of those where the payments cannot be reinvested or securities substituted. Static pool transactions are common in synthetic CDOs where the credit-protection buyer wants to cover its credit exposure to a defined set of exposures for a set period. Between the actively managed and static transaction, there exist some transactions that are actively managed to mitigate defaults. In these transactions the collateral manager monitors the credit risk of the securities and disposes of the securities that are deemed a credit risk. Proceeds from the sale of the securities are either reinvested or used to pay down the liabilities.

## **CDO Structures**

### **Cash Flow Arbitrage**

Central to all cash flow CDOs is an issuer in the form of a bankruptcy-remote special-purpose vehicle (SPE) whose sole purpose is to hold assets and issue securities using the assets as collateral. The SPE is legally structured to ensure that the entity is unlikely to become insolvent or be subject to the claims of creditors.

A trustee is also hired to protect the investor's security interest in the collateral and perform other fiduciary duties. The collateral is held in segregated accounts under the control of the trustee or administrator, and the trustee buys and sells the securities based on instructions from the collateral manager. The trustee also collects the payments generated by the assets, ensures proper allocation of proceeds to the noteholders and equity investors, and confirms that the covenants of the CDO are maintained.

There is often a mismatch between the interest terms of the assets and those of the liabilities. To mitigate

such interest rate-related risk, the issuer might choose to structure hedge agreements with a counterparty. The section titled "CDO Structural and Collateral Considerations" covers hedge considerations, and the section titled "Hedge Counterparty and Agreement Criteria" covers Standard & Poor's criteria for such agreements.

Some CDOs might involve credit enhancement on the senior tranches in the form of a financial guarantee from a bond insurer. A financial guarantee might be used if the economics of the deal benefit from the use of the insurer, or to attract investors who might not be familiar with the collateral or the collateral manager and would not invest without a guarantee. Typically, an 'AAA' rated monoline insurer will insure (or "wrap") tranches that would be rated at least 'BBB' without the guarantee. In addition, there are 'AA' and 'A' rated financial guarantee companies that are also active in the market.

Charts 1 and 2 show the flow of funds and outline the roles of each of the participants in a typical CBO transaction and CLO transaction, respectively.

**Chart 1**  
**Sample CBO Transaction**

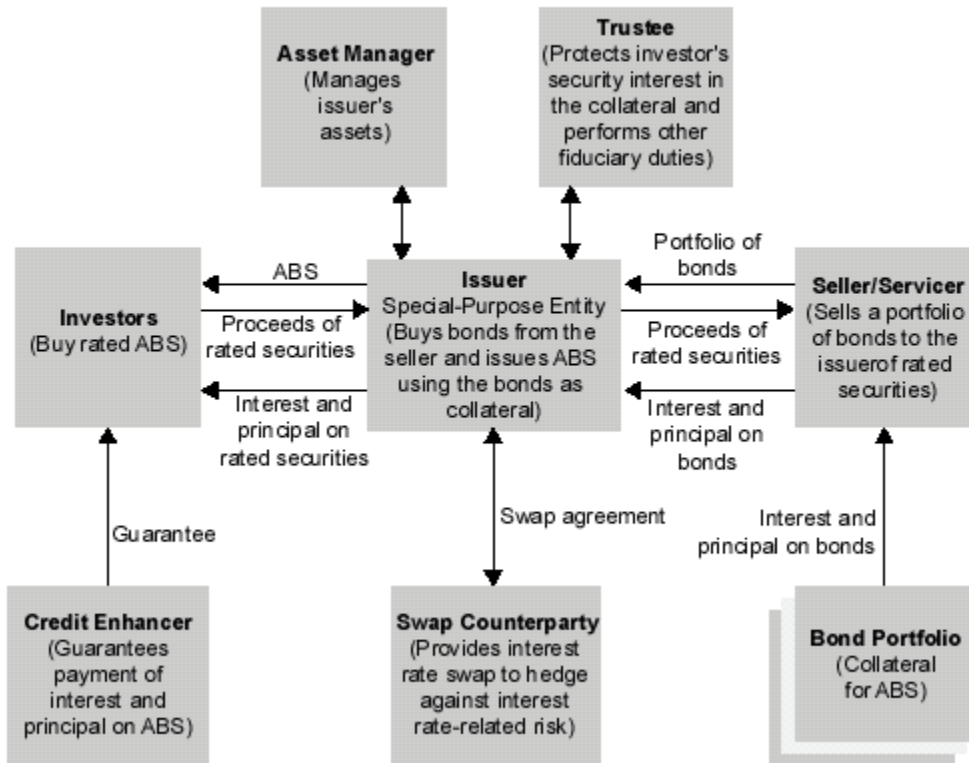
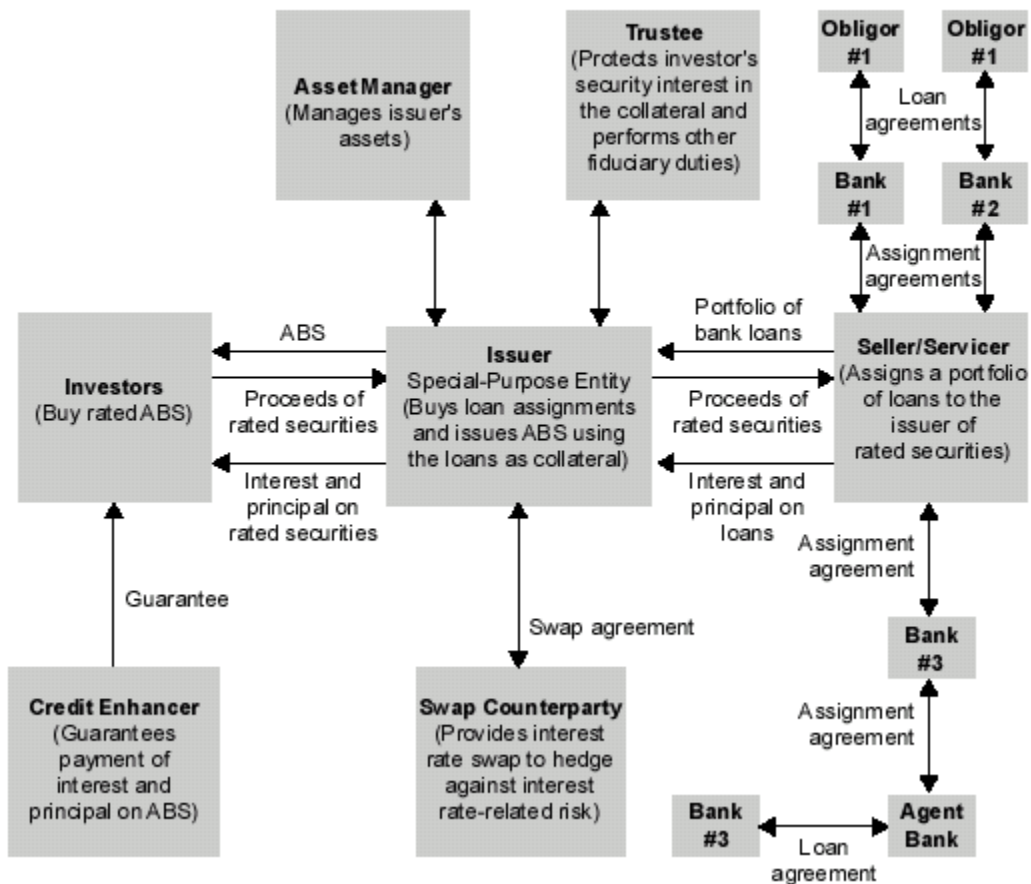


Chart 2  
Sample CLO Transaction



The frameworks both CBO and CLO structures share are identical. However, loan assets have some features that can make the analysis more complicated than that of bond assets. Certain credit, legal, and cash flow analyses of CLOs differ from those of CBOs due to the following factors:

- The loan type and loan documentation can affect the degree to which rights and obligations can be transferred from the sponsor to the transferee. For example, a loan may in part be a participation. The lead bank transfers all or part of its interest in a loan (which also may include a pro rata interest in any collateral securing the loan) to one or more participants. Analysis of participations often entails an evaluation of the credit risk of the seller bank, whose insolvency may interrupt payments from the borrower to, ultimately, the issuer, as transferee.
- Loan terms vary widely: there are different amortization schedules, payment dates, rate indices, index reset dates, tenors, and so on, which impact the cash flow analysis.
- The lack of uniformity in the manner in which rights and obligations are transferred also results in a lack of standardized documentation for these transactions. Therefore, loan documents require a more thorough legal review.
- Loan portfolios can be restructured to accommodate the diminished or declining repayment capacity of borrowers.

Markets for bank loans are generally less liquid than bond markets. This may increase the risk of not being able to purchase eligible loans during the ramp-up and revolving periods, as well as limiting the exit strategies should a loan default.

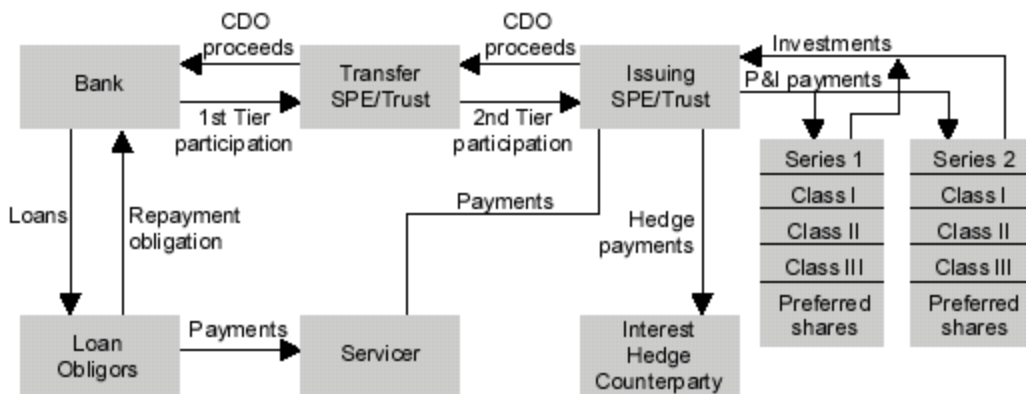
### Cash Flow Master Trust

The properly implemented master trust structure should allow an issuer to sell multiple series from the

same trust, with each series sharing the credit risk and cash flow from one large pool of assets. This structure is attractive to issuers because it is viewed as being cheaper to issue an additional series out of a master trust than it is to create a new, discrete trust. Depending on the issuer, securities issued out of a master trust may be backed by one large, diverse pool of assets containing a mix of seasoned and newly originated loans. Master trusts may contain other structural features that benefit the structure, such as the sharing of excess principal and excess spread among series.

A typical structure for a master trust transaction is shown in Chart 3. While the structure is attractive and a large number of master trusts have been created, to date only a few of the trusts have issued multiple series. This has to do in part to the complexities related to the allocation of collateral among different series in case of a trust event of default, while allowing each series to meet their respective legal maturity dates. Nevertheless, master trusts are an important structure in CDOs.

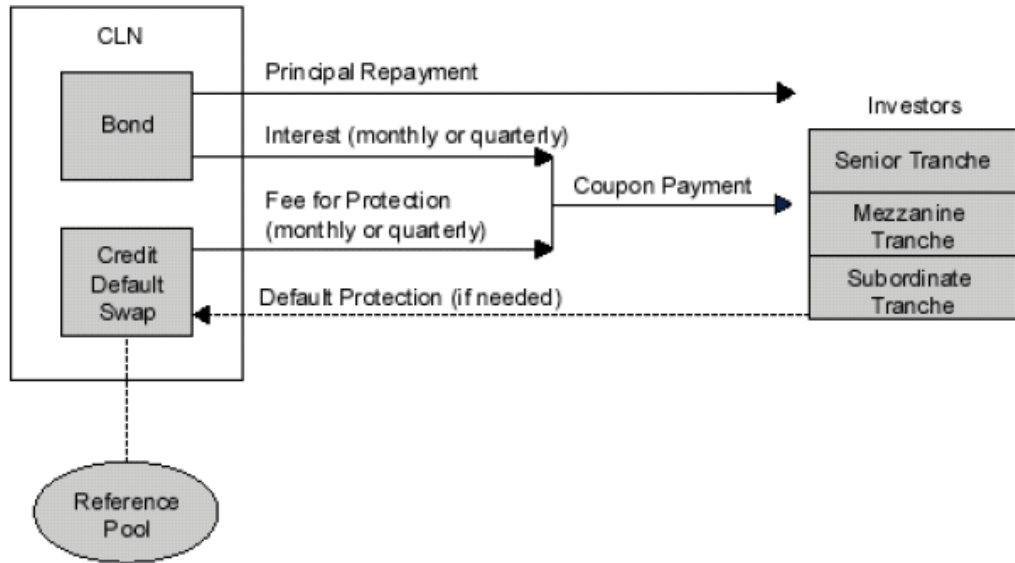
**Chart 3**  
**Balance Sheet U.S. Master Trust CDO Structure**



**Synthetic: Simple Credit Default Swap**

The typical synthetic CDO involves one credit derivative contract executed between the trust and the primary beneficiary of the credit derivative protection. The trust funds itself by selling medium-term notes to investors. As defaults in the underlying reference portfolio occur, credit losses are paid by the trust to the swap counterparty. At swap maturity, the remainder of the proceeds of the original sale of notes is then returned to the note investors. This is commonly known as a credit-linked note (CLN) structure and is shown in Chart 4 below. These investors are paid a rate of return on their notes. The source of this interest payment is usually a combination of the sum of swap fixed-rate leg payments received by the trust from the swap counterparty, commonly referred to as premium payments, and interest income generated by the proceeds of the notes themselves. Depositing the proceeds of the notes in a qualified investment contract, guaranteed investment contract (GIC), or eligible investments account typically generates the floating LIBOR or EURIBOR component of the interest income needed for the investors.

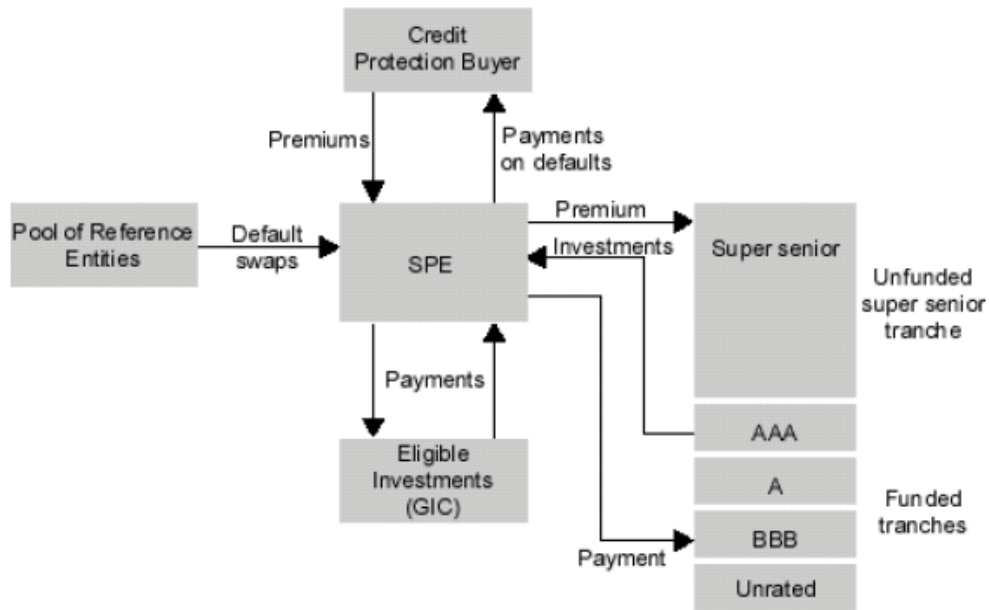
Chart 4  
**Sample CLN Transaction**



**Synthetic: Partially Funded**

In a partially funded synthetic CDO, the simple default swap structure defined above is modified to only issue and sell notes to investors sufficiently to cover 'AAA' risk, but not the entire balance of the reference asset pool. For example, for a \$100 pool of assets, the level of credit support needed for an 'AAA' rating may be \$30. The trust could thus issue only \$30 of debt to investors. The difference between the funded or issued notes to investors and the reference asset pool is the super senior piece. This piece can remain outstanding with no investors covering the risks and the primary credit-protection buyer taking on the remote risk that defaults will exceed the 'AAA' level. Alternatively, the primary credit-protection buyer can pay a premium to a counterparty or monoline insurance company, typically an 'AAA' rated one, to make payments should defaults exceed the sized 'AAA' level

**Chart 5**  
**Partially Funded Synthetic CDO Structure**

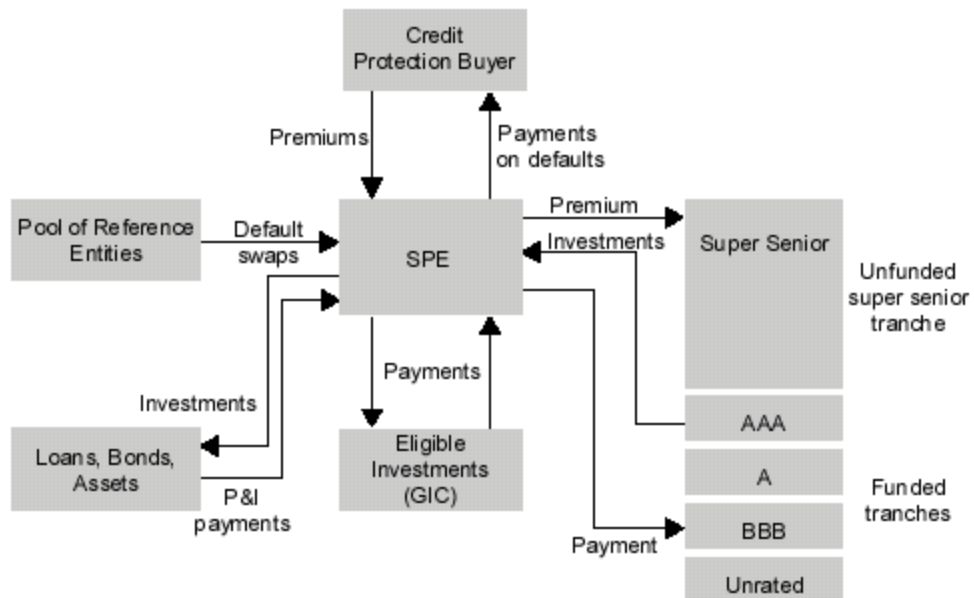


**Mixed Cash Flow and Synthetics**

A number of structures combine elements of both cash flow and synthetic transactions. For example, a transaction can be structured where the SPE issues securities and uses part of the proceeds to buy a pool of physical assets (loans, bonds, ABS, etc.) while the remaining portion of the sale proceeds are invested in a GIC and the SPE enters into synthetic contracts with a buyer of credit protection. The cash flows generated by the physical assets, plus the returns on the GIC, plus the premium received from the credit-protection buyers are used to pay interest on the issued securities and to pay down the securities as the physical assets mature. Should defaults occur, proceeds from the GIC can be used to pay the credit protection buyer. An example of such a hybrid structure is presented below.



**Chart 6**  
**Mixed Cash Flow and Synthetic CDO Structure**



Structuring such deals poses more issues since the investors should not be subjected to the forced market liquidation of the physical assets or cash bonds, in order to pay back the credit protection buyer.