

# NGR PROFESSIONAL RESEARCH

***INSIGHT***



NGR Consulting « Insight » aims at bringing a professional view on upcoming trends and concerns of financial markets through publishing short analysis.

All analysis and documentation can be found on NGR Professional Research link as follows:

<http://www.ngrconsulting.com/spip/>

## **Introduction to Securitized Credit Structures CDO & Collateral**

NGR CONSULTING

### *Introduction to Securitized Credit Structures CDO & Collateral*

#### **Context**

##### **Recent events**

The financial crisis in 2008 is inextricably linked to the development of collateralized structured securities. Collateralised debt obligations were the preferred structures used to package and refinance sub-prime real-estate mortgages together with normal mortgages.

When the US economy slowed and the US real-estate market collapsed, the value of the underlying for these CDOs was badly affected.

##### **Bad reputation**

The financial crisis has given CDOs something of a bad reputation, with banks booking huge losses on positions in CDOs. The impact on originating banks was strong, as these were often obliged to take the first hit on the junior tranches. The impact on investors was equally disastrous- as repayments on sub-prime portions of collateral portfolios failed, ratings were marked down, with knock-on effects as potential losses were created in senior tranches. A vicious circle set in with ratings falling on senior tranches and market liquidity evaporated.

##### **Collateralized structures in context**

CDOs are one of a series of collateralised securities available to investors. Other collateralised securities are ABS (asset back securities) and MBS (mortgage back securities). In these structures the issuer keeps assets on its own books, but these securities also saw serious losses in value during the crisis.

#### **Basic Structures**

##### **Balance sheet CDOs**

The aim of a balance sheet CDO is to deconsolidate a loan portfolio, which is the underlying of the security (so generally this would be a CLO). This reduces the volume of assets on the books of the banks.

Generally the assets will be bank loans or mortgages or a securities portfolio.

CDOs are generally more closely targeted in terms of assets with a portfolio of 50-200 borrowers. A traditional ABS, with an underlying of retail loan receivables or credit-card receivables is usually much wider in scope with perhaps 50 000 loans.

##### **Arbitrage CDOs**

The aim of an arbitrage CDO is to reduce the collateral cost, by buying collateral which is cheaper than the original security held.

##### **Balance sheet CDOs**

###### **Traditional structures**

The bank sells a homogenous loan portfolio to a SPV, which sells a security to finance this. A master-trust configuration has frequently been used, permitting the same structure to be reused for later issues.

###### **The loan portfolio**

Generally, the borrowers are rated, permitting the rating agencies to apply a scoring system to rate the security. These may typically be syndicated loans.

The portfolio will be subject to concentration and diversity rules, regulating the proportion of loans in the portfolio to one borrower (or group of related borrowers) and the spread of ratings available in the portfolio.

###### **Credit support by the seller**

The seller keeps the junior tranche and the cash collateral account, and would absorb the first losses.

The excess spread of the CLO (cash received by SPV - coupon paid- SPV management fees) would normally go to the seller, but may be used to offset losses

### Balance sheet CDOs

Typical traditional structure:

5 year maturity, fixed for 3 y, 90% AAA, 3% A, 2% BBB, 2% BB, 2% subordinated tranche, 1% cash-

AAA senior tranche is sold to investors looking for high quality investment. It is repaid 50% after 3 years, 25% after 4 years, rest at maturity. The BBB and BB mezzanine tranche may be repaid after 3 years, if there is adequate collateralization.

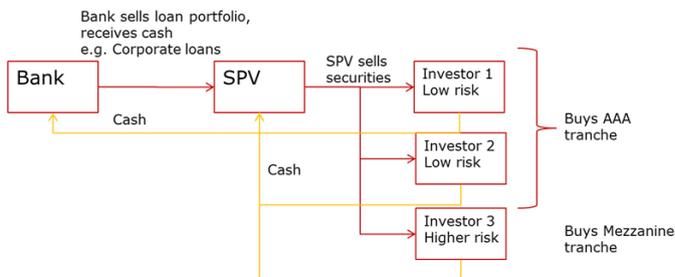
The seller keeps the subordinate tranche and the cash. These would absorb the first 3% of any loss.

Collateral loans would typically have maturities not longer than the CLO (2-3 years is better).

When loans mature, cash is reinvested (maintaining portfolio quality), with bullet payout at end of period.

### Traditional structures

The bank sells a homogenous loan portfolio to a SPV, which sells a security to finance this. A master-trust configuration has frequently been used, permitting the same structure to be reused for later issues.



### Synthetic

The structure is similar to a traditional CLO, with the bank selling the risk of a loan portfolio, but in contrast to a traditional structure, the seller does not require the cash. Instead, the bank sells CDSs on the underlying loan portfolio.

The quality requirements on the underlying loan portfolio in terms of distribution and concentration will be similar to a traditional structure, but this will be the underlying for the CDS, which in turn is the underlying for the security.

The SPV will be an ad-hoc construction rather than a trust-fund. The SPV undertakes to buy the risk of the CDS, receiving the premium and paying the seller for any credit rating reductions. The SPV will issue the security and buy collateral securities.

### Synthetic CDO – Typical structure

The bank wishes to sell the credit risk of a portfolio of 100 of commercial loans to rated companies. As with a traditional CLO, the rating agencies can easily analyse the average rating, the concentration and the distribution, and give a global rating for the portfolio.

The bank sells the risk to an SPV (buys a CDS), paying a premium.

The SPV buys collateral securities worth 100 (treasuries etc.) and issues a CDO with:

- Rating AAA 80 securities - senior tranche
- Rating BBB 15 mezzanine securities - intermediate tranche
- Rating BB 5 subordinate tranche, kept by seller

The cash-flow of the SPV consists of receiving the premium for the CDS from the seller, receiving the coupon from the collateral securities, paying the coupon on the CLO.

### Synthetic CDO – Comparison with traditional structure

Lower management costs- there is no cash capital transfer between seller and SPV, so the SPV need only manage the cash-flow and the collateral pool.

The quality of the collateral pool is decisive for the acceptance for the bank's capital adequacy calculation.

In this structure, the investor must check the provisions stipulated in the case of seller default. In a traditional CLO, lender default results in immediate amortization of the loan portfolio, giving CLO buyers a chance to recuperate their cash; in a CDS based CDO, the CDS is generally transferred to the new owner of the assets- investors must wait until maturity to recuperate funds.

The investor must assure that actual quality of the loan portfolio underlying the CDS is acceptable, as CDS can be sold to cover a variety of risks.

### Leveraged

This is similar in structure to a synthetic CDO, but there is an additional fire-break between the senior tranche and a so-called super senior tranche, whereby both are AAA rated. In the case of a default, the senior tranche must be fully consumed before the super senior tranche is touched.

In this case, the seller might keep both the most subordinated tranches (as we saw in the previously), but the seller may keep the super senior tranche too, benefiting from AAA and risk-free quality to significantly reduce the capital cost of this portion on the balance sheet. The mezzanine tranches would then be sold to investors looking for a higher potential return in exchange for a rating at the low end of investment grade or sub-investment grade.

### Arbitrage CDOs

#### Collateral trading

The underlying of an arbitrage CDO are the bonds purchased (so we may say CBO in this case). The seller is not seeking to reduce the balance sheet impact in this case, but rather to trade down to cheaper collateral.

The cash structure permits the seller to exchange collateral securities for cash, with the SPV holding eligible securities as collateral against the CBO. The non-cash structures permit the seller to sell the risk of the collateral securities by buying a CDS from the SPV.

Generally this type of transaction will be specific to certain transactions and therefore smaller than a balance sheet structure.

### Static cash-flow CDO

The owner of the underlying securities sells a securities portfolio to an SPV. These will typically be sub-investment grade securities, which are often illiquid. The rating agency will assign a rating to the portfolio depending on the rating of the individual securities, the concentration and the expected recovery rate (in the case of default).

The SPV sells a CDO structured with a senior tranche and a junior tranche. The junior tranche will absorb all the losses before the senior tranche is touched. The underlying portfolio will generally have a short remaining maturity (max 3 years).

Let us assume the seller's portfolio is composed of say BB rated securities paying Libor + 3,5%, maturity one year (The seller will execute an IRS with the SPV to convert fixed to floating), with an assume default recovery rate of 50%.

The SPV may issue securities with a 1 year maturity with a senior tranche of 80% rated A2 of the underlying value at Libor + 1% and 20% subordinated security paying the surplus.

#### Example: Static cash-flow CDO

The final result for investors is determined by the actual default rate and the actual recovery rate.

If the recovery rate is 50% at maturity, the breakeven for the senior tranche is at a default rate of 40% of the total volume.

With Libor at 3% if there are no defaults, the SPV will receive 100 plus Libor +3,5% so 106,5.

The SPV will pay senior tranche holders will be paid  $80 + 4\% = 83.2$

The junior tranche holders will be paid  $23.3 = \text{Libor} + 13.5\%$ .

With a default rate of 40% (of which 50% is recovered at maturity), the SPV will recover  $63.9 + 20 = 83.9$

The senior tranche holders will receive 83.2

The junior tranche holders will receive 0.7, a loss of 19.3 (plus Libor, plus management fees)

### Market value CDO

A cash-flow CDO is essentially isolated from the market price of the underlying securities- only the default rate and the recovery rate influence the final result. For investors who want exposure to the market value of the underlying.

In this case the cash-flow is significantly generated by the resale of the underlying security. In fact the payout will usually be determined by the total rate of return, being the sum of income payments and the market price at maturity of the CDO.

Looking again at the previous example, if we assume the underlying securities portfolio does not mature, but is sold after one year at 105 and the senior tranche holders receive Libor + 1% plus a cap of +1% of market value, then the result would be:

SPV receives  $105 + (100 * 6.5\%) = 111.5$

Senior tranche holders receive  $80.8 + 3.2\% = 84$  (return of 5%)

Junior tranche holders receive 27.5 (return of 37.5%)

### Active management CDO

The above examples have been based on a static underlying portfolio. An active management CDO is close to a traditional investment fund, where the manager is responsible for maintaining the underlying portfolio.

- In the more restrictive models, the manager will just recuperate assets in default, with the aim of enhancing the recovery rate.
- A more active role for the manager may include portfolio management to avoid default, abandoning securities which are in imminent or potential danger of default.

- The manager may manage the portfolio to maintain the value of the underlying, re-investing cash in eligible assets.
- Trading- the manager may trade between assets within the turnover constraints agreed to protect the value of the underlying portfolio.

### Basic problems with ratings

It is clear from the discussion above that the ratings agencies play a key role in the CDO market. The rating of underlying portfolio is key to assessing the risk of the CDO based on it.

The diversity of the underlying portfolio is key to assessing how the total value is sensitive to market events/default risk.

The notion of correlation between assets types or issuer types to relevant market events would seem to be key here, but historically this has not been a major element in agencies analysis. One would assume the events of the last 2 years and the apparent systemic risks in certain sectors have resulted in a reassessment of this.

CDO's ratings will depend on the collateral held by the SPV. Often this must be in the form of treasuries or liquid P1 short term securities, if the selling bank wants to minimize the impact on the balance sheet. It may also be necessary to limit the term of the CDO to that of the underlying.

As with all structured products, there is a degree of complexity and expense to launch and manage. Simplified processes by ratings agencies have made the industrialization of this product possible, but investor confidence has been shaken, and we may expect inves-

tors to conduct more own analysis.

### Structural weakness of non-cash CDOs

Much of the underlying in CDOs has been in the form of CDS and not cash securities portfolios.

This means SPVs do not buy the securities portfolio and receive the coupon. Instead, the SPV buys the credit risk of the portfolio and receives the premium.

The advantages of this are clear, as no cash, securities or income events need to be managed at a sub-custodian, only occasional cash events, thus reducing the management costs.

There are 2 problems associated with this:

- The CDS market may be influenced by market participants with no positions in the underlying. This may create strange value changes for SPV management reporting.
- The life cycle of the CDS is dependent on the ratings, with the same associated problems we mentioned already.

### Recovering capital on the underlying portfolio

It is clear that the investor's economic benefit from buying a CDO may be sensitive to the degree to which funds may be recovered from assets in default. This is even more true for the asset seller, who will take the first and biggest hit from a default as owner of the subordinated tranche.

#### Transfer credit risk

- If the credit risk has been transferred to the SPV by a CDS, the default will define the payout, with no possibility for the SPV to recover funds.
- If the seller (the originating bank) defaults, a CDS goes to the new owner of the underlying assets, so the SPV must regulate the further life-cycle of the CDO with a new counterparty.

#### Transfer of cash portfolio

- If the seller transfers a loan portfolio to the SPV, a seller default would normally permit the SPV to call the loans.

- With underlying collateral assets in liquid market assets, the recovery rate is likely to be higher in the case of a default.

### Example of initial steps for SPV outsourcing

#### Strategic development opportunities in 2012 & 2013

##### Securitization

OPEXIA offers a platform to on board certain elements in the value chain as issuing agent, paying agent

- Where the CTS provider wants to manage the service at arm's length.
- Where the CTS provider wants to manage client communication at arm's length.
- The bank would continue to manage back-office services, generating service fees and utilizing existing production capacity.

OPEXIA may provide an alternative structure, permitting CTS and OPEXIA to propose solutions to new or existing clients, whose requirements may otherwise be outside the CTS Bank's target business model

- The Bank can generate fees on new processing vo-

lume.

- The Bank can maintain and develop client relationships for business, which may otherwise have gone elsewhere.

### Scope of service offer by Opexia

#### Trustee for securitization

Establish the securitization vehicle, acting as trustee for the issuer, registering securities on the agreed market (Luxembourg EMTF)

Maintain an agreement with an asset service provider, acting on behalf of the issuer

Monitoring collateral asset performance reported by asset service agent- debt repayments, interest payments, level of unserviced debt

Maintain an agent agreement with custodian and paying agent

Monitoring custodian services for issue settlement

#### Asset Servicing Provider

Corporate Trust Services

Issuer services

Calculation agent

Depository

Conversion agent

Paying agent

Escrow agent

Collateral agent

#### Opexia

Trustee services

Setting up and managing the SVP

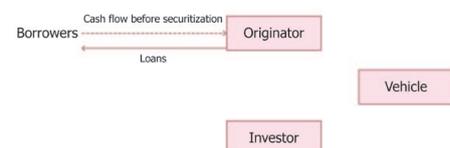
Issuer agent

Support client road-shows in English, German or French

Monitor cash flows of paying agent

### Offer for Corporate Trust Services Legal fees

1. The trustee agreement will be in English law and in the English language, requiring English legal expertise.
2. Asset service provider agreement- the assets are likely to be loan or loan-leasing agreements in national markets and therefore in a European language in which the issuer has assets. The legal support may be required in various languages.
3. Incorporation of the SPV and the securities prospectus will be required under Luxembourg law.
4. A service level agreement with the custodian paying agent under Luxembourg law





### Schematic cash flow of a CDO

Cash flow before securitization

Cash flow of securitization

Cash flow of securities

Terms and Conditions

1. What would be the price for each service element provided by OPEXIA to BP2S ?
2. What is the structure and rate for NGR-Consulting support (roadshows, presentations, client contact) ?
3. What would the structure of an agreement be ? BP2S, OPEXIA, Client ?
4. What would be the recourse in the event of late or non-payment
  - a. On the interest or amortization of the issue?
  - b. On the asset servicing?
 What trustee actions are required with:
  - the investors
  - the issuer
  - the asset pool service agent

### References for issue regulations

Grand-Ducal regulation of 3 August 2005 concerning prospectuses for transferable securities.

#### Regulation 809/2004 of the European Commission

Corrigendum to Commission Regulation (EC) No 809/2004 of 29 April

2004 implementing Directive 2003/71/EC of the European Parliament and of the Council as regards information contained in prospectuses as well as the format, incorporation by reference and publication of such prospectuses and dissemination of advertisements.

#### CSSF Circular 05/ 224

Choice of the home Member State for third country issuers whose securities are admitted to trading at 1 July 2005 and notification by these issuers of their choice by 31 December 2005.

#### CSSF Circular 05/225

The notion 'offer to the public of securities' as defined in the law on prospectuses for securities and the 'obligation to publish a prospectus' that may ensue.

#### CSSF Circular 05/226

General overview of the law on prospectuses for securities and technical specifications regarding communications to the CSSF of documents for the approval or for filing and of notices for offers to the public and admissions to trading on a regulated market, in relation to the law relating to prospectuses for securities.

#### CSSF Circular 05/210

Drawing-up of a simplified prospectus within the scope of Chapter 1 of Part III of the law on prospectuses for securities.

Law on prospectuses for securities.

Law of 11 January 2008 concerning transparency requirements for issuers of transferable securities.

Grand-ducal regulation of 11 January 2008 concerning transparency requirements for issuers of transferable securities.

Rules and regulations of the Luxembourg Stock Exchange (Part 1: Admission of securities to trading on the securities markets of the Luxembourg Stock Exchange and admission to its official list).



### **Author**



**Alex Blinkhorn**  
Senior Manager  
NGR Consulting

### **Who are we ?**

NGR is an independent consulting firm specialized in the financial sector; it provides services to the main financial institutions in order to help them optimize their global performance. Combining strong expertise of the funds industry, private banking, asset management, and solid market knowledge, NGR closely works with its clients to define innovative strategies and operating models allowing to quickly deliver return on investment.

If you also want to experience a new way of consulting, do not hesitate to contact us at [info@ngrconsulting.com](mailto:info@ngrconsulting.com)

### **Contacts**

NGR Consulting Luxembourg  
38, rue Pafebruch  
L-8308 Capellen

Tél.: +352 26 65 20 52

Site Web : [www.ngrconsulting.com](http://www.ngrconsulting.com)