Derivatives in structured finance: credit derivatives and Italian synthetic CDOs

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Agenda

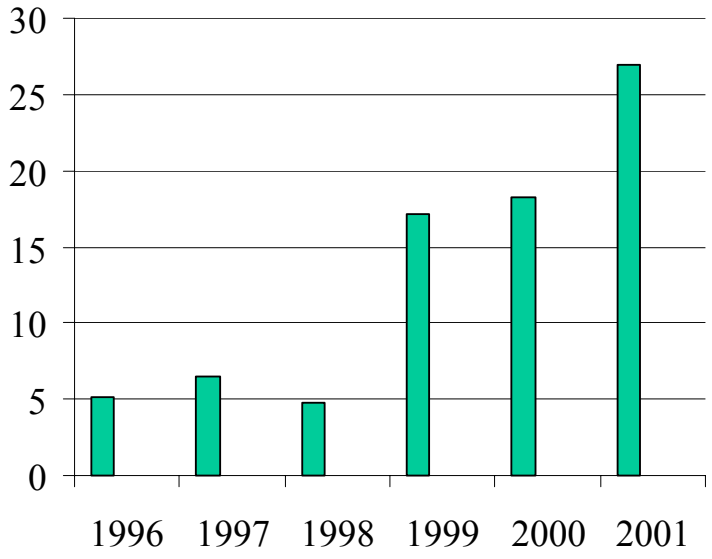
- Introduction
- Credit Derivatives
- Synthetic CDOs
- Case study: Two Italian market synthetic CDOs

Introduction

- **Collateralised Debt Obligations** (CDOs) are a major asset class in the securitisation and credit derivatives markets.
- CDOs provide **banks** and **portfolio managers** with a mechanism to outsource risk and optimise economic and regulatory capital management. For **investors** they are a tool by which to diversify portfolios without recourse to the underlying assets.
- CDOs split into two main types: **balance sheet** and **arbitrage**. Within these categories they may be either **cashflow** or **synthetic**.
- In a cashflow CDO the physical assets are sold to a special purpose vehicle (SPV) and the underlying cash flows used to back the principal and interest liabilities of the issued overlying notes.
- In a synthetic securitisation, **credit derivatives** are employed in the structure and assets usually retained on the balance sheet.

Background

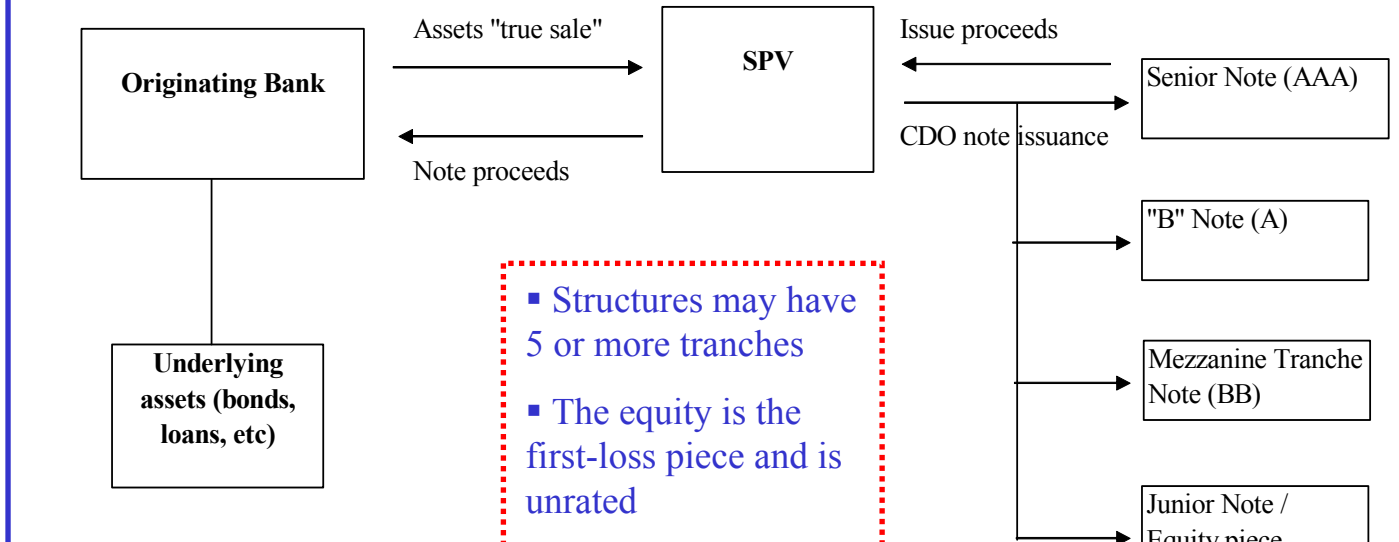
- CDOs involve transfer of a portfolio of loans **(CLO)** or bonds **(CBO)** or a mix of these (CDO), and issuance of a tranche of notes, splitting risk levels to suit different investors.
- **Balance sheet CDO:** originator manages its own balance sheet by freeing up economic or regulatory capital.
- **Arbitrage CDO:** asset manager expands assets under management, and/or exploits differences in funding costs of assets and liabilities; and meets investors' demand for specific tranche of risk.



Growth of European CDO market ($ bln)

(Source: RISK)

Cashflow CDO: simply a repack or “large ABS” ?!

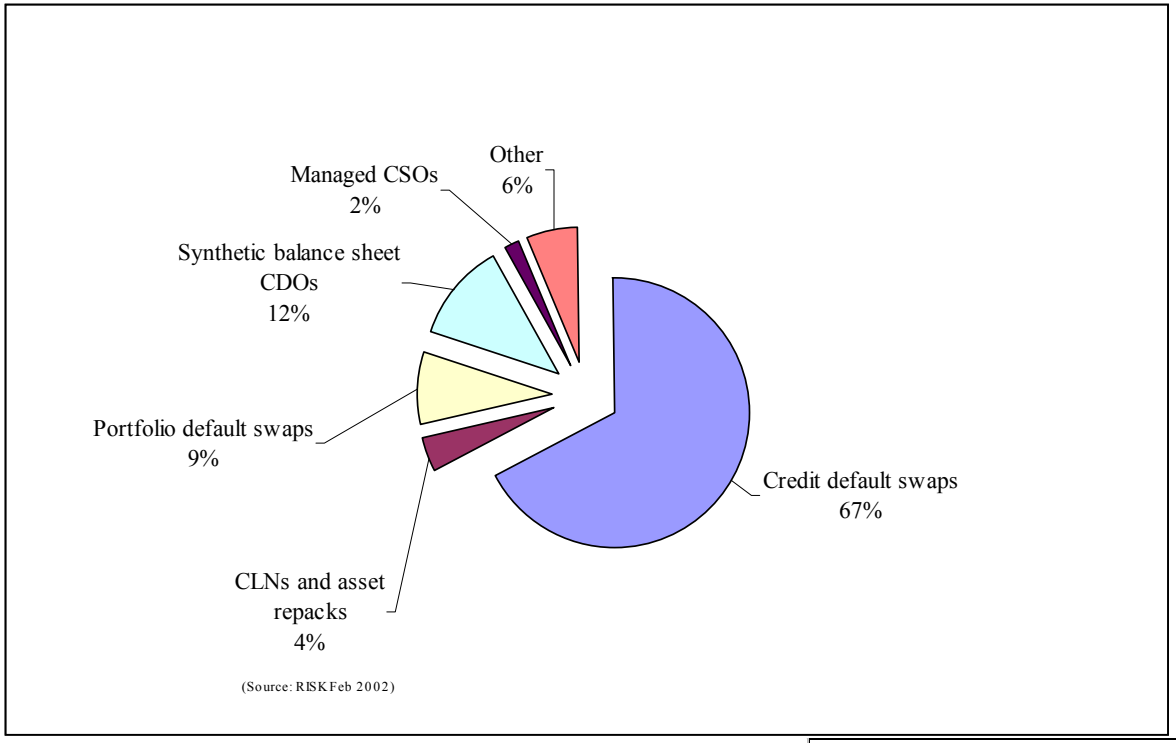


- Structures may have 5 or more tranches
- The equity is the first-loss piece and is unrated
- Senior piece is the majority and usually 70%-90% of the structure

Credit derivatives

- Credit derivatives are instruments that allow the isolation and management of credit risk from all other elements of risk
- **Types of credit derivative:**
  - **Credit default swap**
  - **Total return swap**
  - **Credit-linked notes**
  - **Credit spread products**
  - **Credit spread options**
- In a **single-name** credit derivative, the reference entity is a single obligor
- Multiple-name credit derivatives (known as **basket** or **portfolio** products) are referenced to more than one obligor

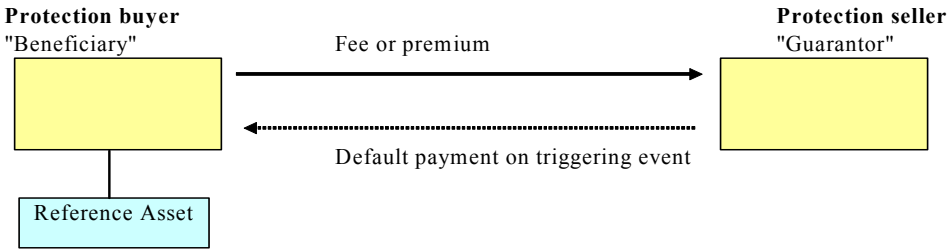
Volume and product



Notional volumes $ bln (Source: BBA)					
1997	1998	1999	2000	2001	2002 est
180	350	668	1009	1971	2554

Credit derivatives

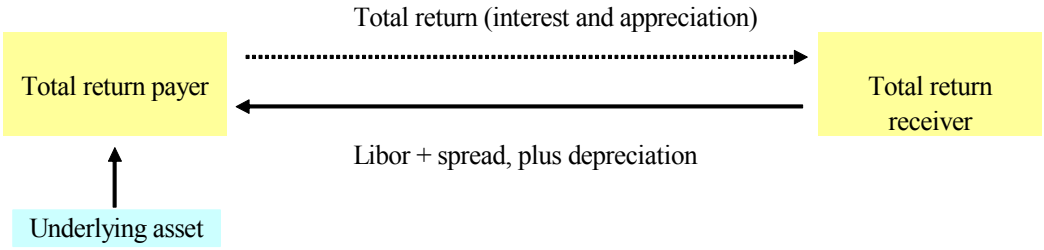
- With a credit derivative one is transferring credit risk of specified asset(s) to a 3rd party while keeping the asset(s) on the balance sheet – so not a “true sale” but use of loss definitions
- In a credit derivative contract the buyer of protection pays a premium to the seller of protection, who is obliged to pay out on occurrence of a **credit event**
- **Credit default swap**



- The “trigger event” is the credit event as defined in the legal documentation for the contract
- A credit default swap is deemed to be an unfunded credit derivative, because the protection buyer is exposed to counterparty risk from bankruptcy of protection seller

Credit derivatives

- **Total return swap:** Like a credit default swap, a bilateral contract, but where the protection buyer exchanges the economic performance ("total return") achieved by the reference asset in return for periodic payment that is usually a spread over Libor. Similar to asset swaps, allowing the total return receiver to create a synthetic leveraged position in the reference asset



- **Credit-linked note:** A bond containing an embedded credit derivative, linked to the credit quality of the issuer *and* of the underlying reference credit. The investor – the protection seller – receives an increased coupon payment, as well as par value of the note on maturity assuming no credit event occurs. CLNs are funded credit derivatives since the issuer (protection buyer) receives payment upfront for the note and so has no counterparty risk exposure.

Mechanics of credit derivatives

- **Credit derivatives are defined by:**
  - **Reference entity:** specified sovereign, agency or corporate
  - **Credit event:** describes the trigger event
  - **Deliverable obligation:** the reference credit that is delivered in the event of physical settlement (usually reference entity)
  - **Settlement mechanism:** whether cash or physical settlement. If cash settlement, typically protection seller pays [Notional x (100 – price)] to protection seller. If physical settlement, buyer delivers deliverable obligation in exchange for par
- **Reference entities:**
  - **Single name:** underlying reference asset
  - **Basket CDS:** small number of assets; “first-to-default”
  - **Portfolio CDS:** unfunded CDSs linked to portfolio of assets, used to transfer credit risk on reference portfolio, so in effect unfunded synthetic CDO

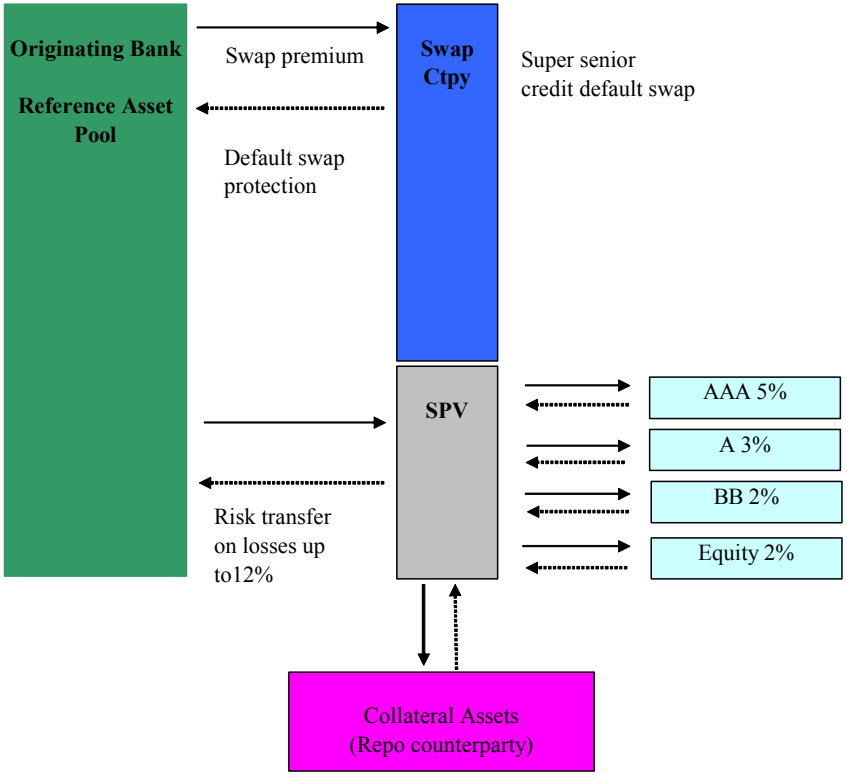
Using credit derivatives in securitisation

- **True sale versus synthetics: a true sale via SPV**
  - has higher costs
  - less flexibility
  - takes longer to bring to market
  - is more difficult across multiple legal and regulatory regimes
- **Unified documentation (ISDA)**
- **Flexibility to create customised exposure**
- **Enables separation of funding and credit risk management**
- **Synthetic CDOs**
  - "Second generation" CDO use CDS and/or CLN or SPV; unfunded, partially funded / fully funded
  - Third and fourth generation CDOs: Hybrid CDO mixing elements of synthetic CDO with cash assets (eg., Deutsche Bank "Jazz")
  - Managed synthetic or "CSO" (Robeco III)

Introduction to synthetic CDOs

- Synthetic CDOs comprise over 50% of total CDO issuance and are in a greater majority in European market (source: Fitch).
- Synthetic CDOs combine securitisation techniques with credit derivatives and were introduced in Europe in 1998.
- **Mechanics:** the originator transfers the credit risk of a pool of reference assets via a **credit default swap**, or transfers the total return profile of the assets via a **total return swap**.
- Typically an SPV issues one or more tranches of securities known as credit-linked notes whose return is linked to the performance of the reference assets.
- Proceeds of note issuance form the first-loss protection reserve and are usually invested in liquid AAA-rated collateral.

Generalised partially funded synthetic CDO



- The majority of the credit risk is transferred by the "super senior" credit default swap
- The riskier element is transferred via the SPV which issues default swaps (unfunded) or credit-linked notes (funded)
- The first-loss piece is the unrated equity note.
- Each note has a different risk/return profile

Motivation behind synthetic CDOs

- The primary motivation for entering into an arbitrage CDO is to exploit the yield mismatch between a pool of assets and the CDO liabilities.
- Motivation behind a balance sheet CDO is to manage regulatory risk capital and engineer more efficient capital usage
- **Advantages of a synthetic structure**

  Typically the reference assets are not actually removed from the sponsoring firm's balance sheet. For this reason:

  - **synthetic CDOs are easier to execute than cash structures:** the legal documentation and other administrative requirements are less burdensome
  - **there is better ability to transfer credit risk:** especially partial claims on a specific credit reference asset
  - **risk transfer achieved at lower cost:** the amount of issuance is small relative to the reference portfolio. In a "partially funded" structure, funding is mainly provided by the sponsoring financial institution at lower cvost than fully funded structures.
  - **Lower risk weightings:** eg., 100% corporate loan vs 0% on funded portion

Synthetic Arbitrage CDOs

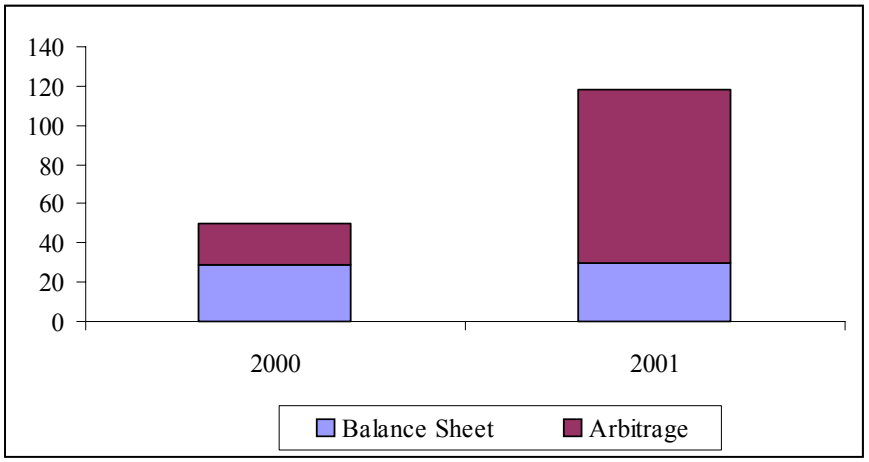
- Synthetic arbitrage CDOs create a leveraged exposure to the reference portfolio of bonds and/or loans
- The portfolio manager and investors seek to achieve returns on a leveraged basis [the arranging bank generates fee income and a means to market its origination activity].
- Typically the SPV enters into a series of TRS on a portfolio of assets that represent different obligors across country and industry. The portfolio may be in place at start ("close") of deal, or "ramped up" after close, and is actively managed by the portfolio manager
- Under terms of the TRSs, the SPV pays Libor plus spread to bank swap counterparty, generally in line with bank;'s funding costs, and receives the total return on reference portfolio. SPV also issues notes/equity which are the first-loss pieces of the portfolio. The reference portfolio is typically funded on-balance sheet by the arranging bank
- The TRS is marked-to-market, hence there is market risk exposure not experienced in cash flow CDOs

Synthetic Balance Sheet CDOs

- Banks have originated synthetic CDO structures both to manage credit risk and to manage economic and regulatory capital, thereby improving return on capital
- Synthetic CDOs enable banks to achieve capital relief at lower funding levels compared to cash flow CDOs
- Later balance sheet CDOs are “CDO of ABS” (CIBC Euromax), transferring portfolio risk of structured bonds via partially funded CDOs
- Originating bank enters into super senior CDS (usually up to 100 or more separate CDSs). SPV issues notes up to 5 or more tranches whose overall return is linked to performance and default of reference assets. The originator retains the equity piece as comfort to investors.
- Note proceeds are invested in AAA-rated collateral, sometimes part of this invested in a GIC
- Most deals are partially funded with swap up to 95% of pool value, reflecting capital management motives rather than funding motives. Bank obtains capital relief through partially funded structure, with CDS providing credit protection and thereby lower capital charge

Development of Synthetic CDOs in Europe

- Within Europe synthetic CDOs have proved more popular than cash flow structures in both balance sheet and arbitrage categories
- Synthetics have evolved into “fourth generation” structures and borrowed featires of cash flow CDOs, such as call features of notes and early amortisation triggers, and active management of collateral pool
- Expected developments in areas such as CDO of CDOs, and new asset classes such as funds (“CFOs”) and equity investments.

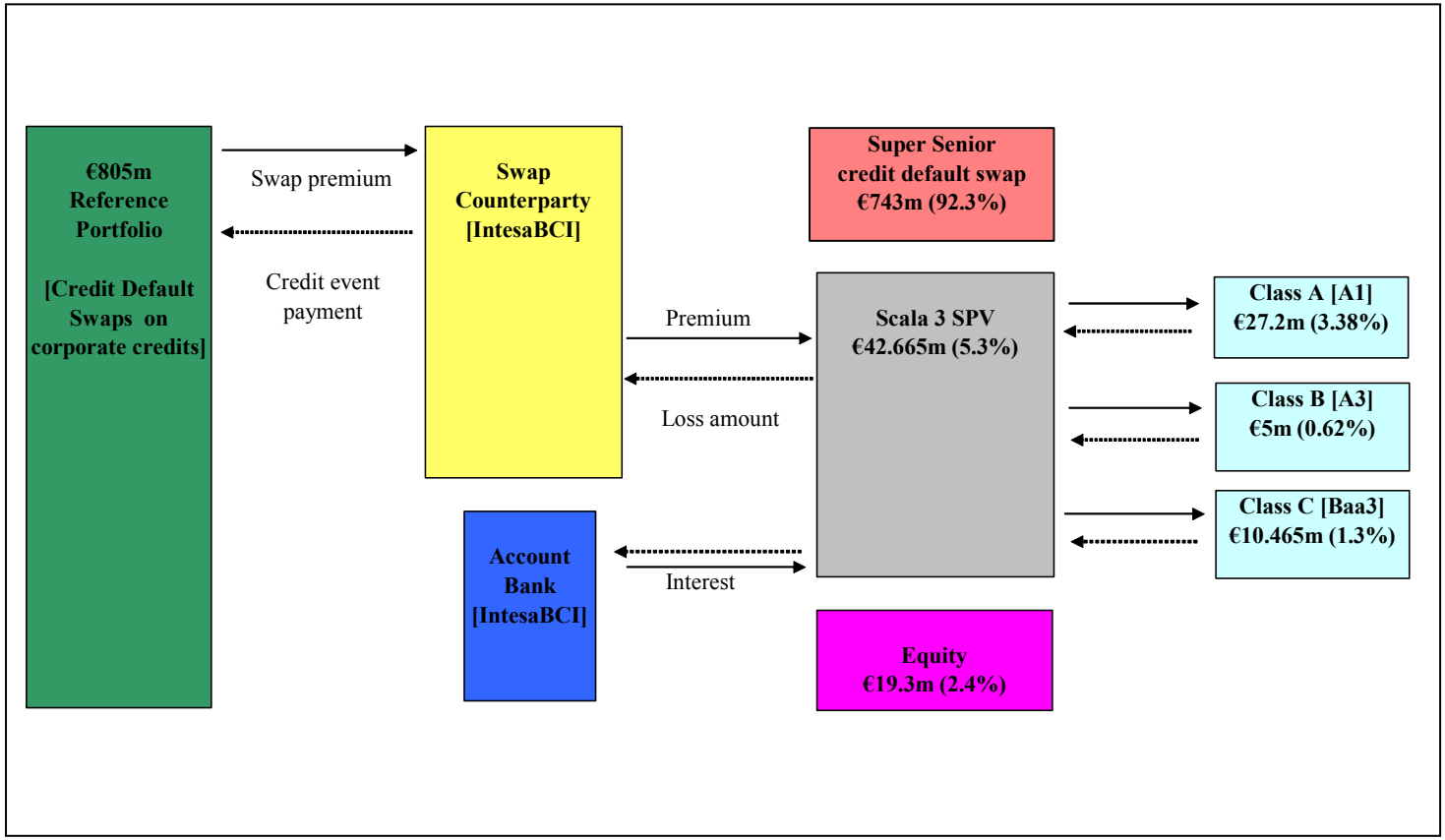


(Source: Moodys)

Scala Synthetic 3 plc

- This is a €805 million synthetic CDO comprised of a static reference pool, the deal originated by **IntesaBCI** with dublin SPV
- The reference portfolio is 80 European credits with Moody's diversity score of 53 and weighted average five-year rating factor of 269.
- IntesaBCIi enters into a credit default swap known as the "reference CDS" related to the portfolio of corporates. It buys protection from SPV.
- On occurrence of a credit event, a "Loss Amount" is calculated; when the cumulative loss amount becomes greater than the reference CDS threshold amount, Scala 3 pays the excess to IntesaBCI as credit protection. This is funded from the reserve account. The total value of the credit protection payment is related to a specified notional amount of its exposure to reference portfolio, equal to funded portion (€42m)
- Credit events are failure to pay; restructuring, bankruptcy, etc

Structure diagram: Scala 3



Scala Synthetic 3 plc summary

Class	Amount €m	Percent	Issue Price	Rating	Coupon Euribor 3m +
Senior swap	743.015	92.3	NR	AAA	-
A	27.2	3.38	100	A1	63 bps
B C	5 10.465	0.62 1.3	100 100	A3 Baa3	87 bps 112 bps

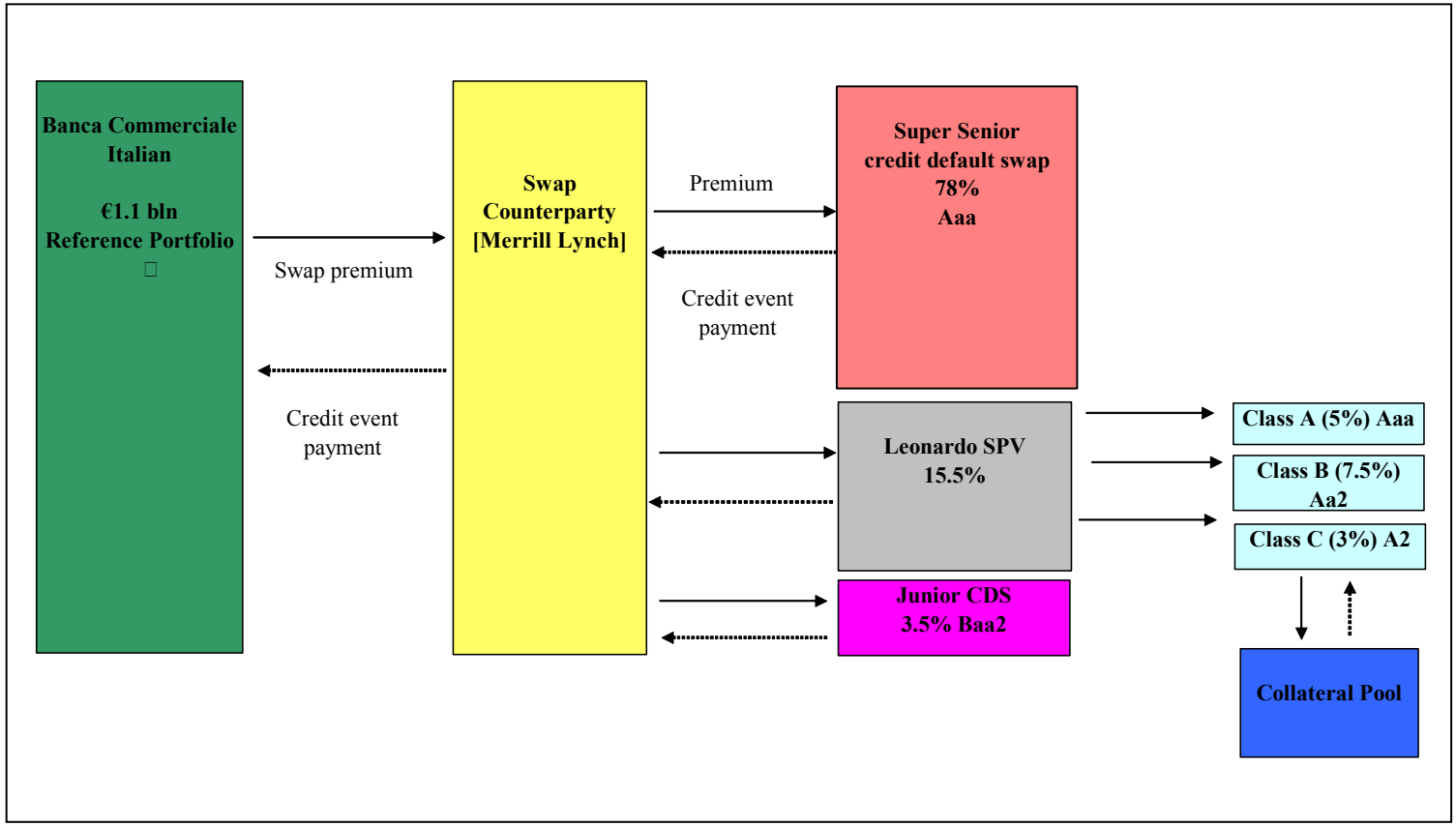
(Source: Moodys)

- Issue date July 2001
- Legal maturity July 2001
- Notional amount €805 million

Leonardo Synthetic plc

- This transaction is a synthetic securitisation of aircraft financing and aviation industry loans.
- The originator is Banca Commerciale Italiana, the objective of the deal is to transfer the credit risk exposure from a pool of aviation sector loans. This is achieved by means of a CDS between BCI and the swap counterparty (Merrill Lynch). The structure is partially funded by an SPV issue of CLNs. Note issuance is collateralised by Italian government bonds (Class A and B) and GIC account (Class C), which is loss reserve.
- As defined in deal documentation, credit events occur in the event of a failure to pay by obligor, which are airlines, and not the SPV. Investor exposure is therefore to reference obligor only.

Structure diagram: Leonardo



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Leonardo Synthetic plc summary

Class	Amount €m	Percent	Issue Price	Rating	Coupon Euribor 3m +
Senior swap	780	78	NR	Aaa	-
A B C	55 82.5 33	5.0 7.5 3.0	100 100 100	Aaa Aa2 A2	[ ] [ ] [ ]
Junior CDS	35	3.5	NR	Baa2	

(Source: Moodys)

EMEA Structured Finance Services

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- Synthetic CDO servicing
- Credit default swap administration
- Investor reporting and testing on CDO reference asset pool
- Warehousing

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