Securitization and tranched credit products

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Executive summary

- **Overview**
- **What is a securitisation**
- **Cash securitisation**
- **Credit enhancement mechanisms**
- **Risk factors**
- **Synthetic securitisation**
- **Real life examples**

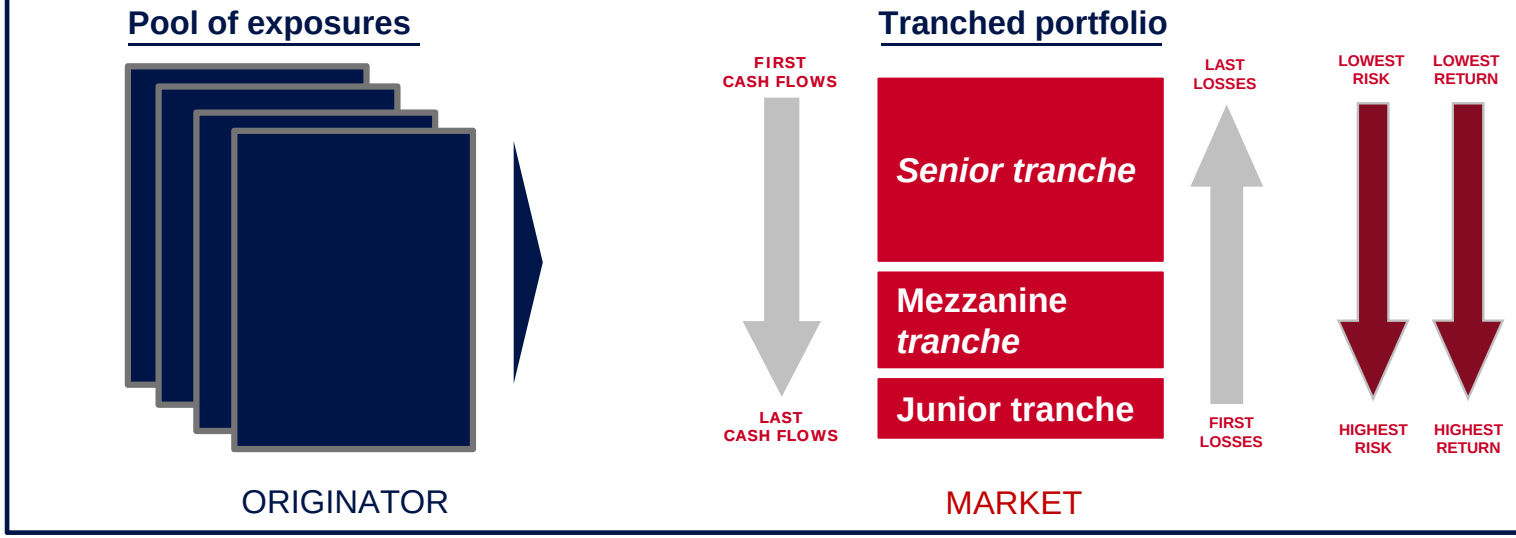
Overview

Art. 4 (59) of Regulation (EU) no. 575/2013 (CRR)

'securitisation' means a transaction or scheme, whereby the credit risk associated with an exposure or pool of exposures is tranched, having both of the following characteristics:

- ***(a) payments in the transaction or scheme are dependent upon the performance of the exposure or pool of exposures;***
- ***(b) the subordination of tranches determines the distribution of losses during the ongoing life of the transaction or scheme***

Securitisation



- **Securitisation** allows to transform a specific balance sheet financial activities portfolio – illiquid - into cash flows supporting payments of capital and interest of bonds/exposures which have a specified risk profile, rated, tradable on the market, liquid, out of balance sheet
- **Originators:** tipically banks, but also financial companies (leasing companies of personal/consumer loan companies) and even Sovereings
- **Asset Classes**: many financial activities could be securitised: mortgages, corporate loans and SME loans, personal and consumer loans, trade receivables, credit card payments, non performing loans, tax payments, bonds, etc.
- Specifi denomination depends on the underlying asset class: RMBS, CMBS, CLO, CDO, …
- **Investors**: banks, funds, insurance companies, pension funds, alternative investment firms, but also ECB that since the quantitative easing has become a frequent buyer

Securitisation

Type of transactions – cash vs synthetics

Securitisation is a structured form of funding (or risk transfer). Transactions may take different forms depending on the purpose that Originator and investors intend to pursue

Why do it?

Issuer / Originator

- Funding
- Balance sheet and risk transfer
- Capital Relief

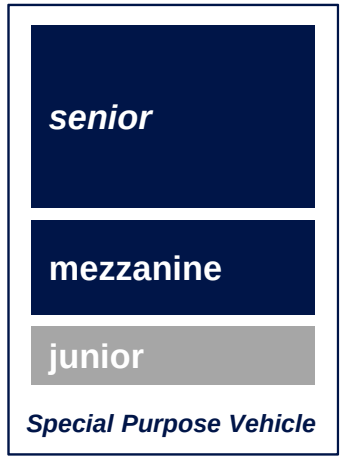
Investors

- non rated assets become rated
- bankable
- Diversification and access to new asset classes
- Selection of ad hoc risk profile

Cash transaction - Asset backed securities issuance

the purchase of notes issued in a cash securitisation transaction

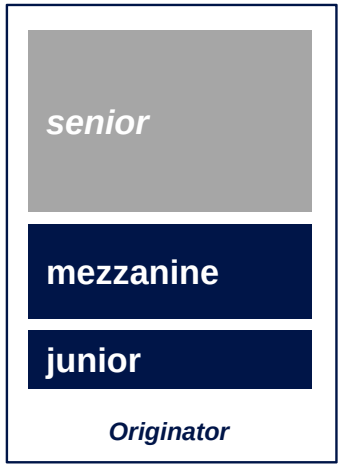
- Portfolio is sold to the SPV
- Originator retain a 5% of the exposure
- Asset Backed Securities are issued and placed in the market
- Typically public rated transaction



Synthetic transaction – single tranche guarantee

the guarantee (or counter-guarantee) of tranched cover synthetic balance sheet securitisation

- Portfolio is retained by the Originator
- Originator “buys protection” on one or more single tranches
- Unfunded credit protection instruments
- Form: credit default swap or financial guarantees
- Designed ad hoc for a given transaction

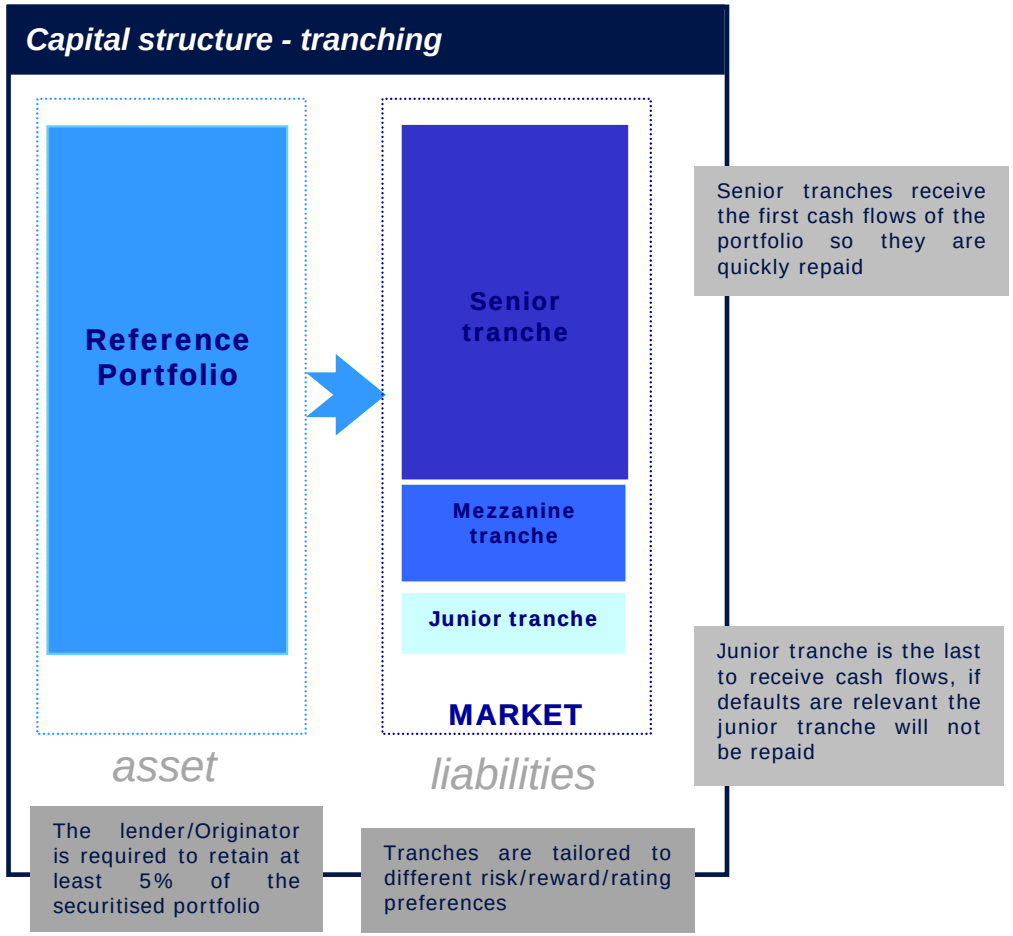


Securitisation – a cash deal

What is a cash securitisation

How does it work?

- The portfolio is isolated from the context of the company in which it was originally placed and sold to an entity created ad hoc solely and exclusively to hold and manage the liquidation of the assets themselves (Special Purpose Vehicle – SPV)
- Assets are immune from the bankruptcy of the Originator
- The SPV, in turn, finances the purchase of assets by issuing securities on the market
- The bonds are called Asset Backed Securities (ABS). They are limited recourse: their performance is linked only to the portfolio performance, as their cash flows depends on the portfolio's cash flows, regardless of the financial situation of the originator
- The risk assessment of these securities depends on the quality of the portfolio and not on the creditworthiness of the originator
- Pass Through: collections on the portfolio are passed directly to service the ABS principal and interest payments
- Several ABS tranches (classes) are typically issued on the market with different risk profile, from the riskier (Junior tranche) which absorbs portfolio first losses, to the senior tranches that will be the last one to bear losses
- Ratings synthetizes the risk profiles of the different tranches



Cash Securitisation

Risk factors

- **Credit risk**: the creditworthiness of the securities depends on the credit quality of the pool and not on the quality of the originator.
- **Liquidity risk**: a temporary cash deficit due to the delay in the collection of receivables could result in lower cash flows for the SPV and funds could not be sufficient to guarantee the coupons of the securities
- **Credit management risk**: poor financial conditions of the servicer can jeopardize the correct and timely management of collections on behalf of the vehicle.
- **Interest rate / currency risk**: the structure may be exposed to a possible increase in rates or to changes in exchange rates (if the receivables are in different currencies).
- **Counterparty risk**: the quality of the counterparties involved in the transaction (for example, banks providing guarantees, liquidity, hedging contracts, ...) may not be appropriate to the quality of the securities issued.
- **Pool deterioration risk**: in the event that the underlying portfolio is not static (revolving pool), the quality of the pool may deteriorate over time, causing an increase in the default rate.

Cash Securitisation

… and the mitigation mechanisms

- **Credit risk**: the structure is protected by a series of credit enhancement mechanisms
- **Liquidity risk**: a liquidity reserve is incorporated in the structure in the form of cash provided by the originator or lines of credit granted by third parties
- **Credit management risk**: a servicer replacement mechanism is envisaged
- **Interest rate / currency risk**: derivative instruments: to protect the structure against interest rate risk, the vehicle can enter into swap or cap contracts
- **Liquidity reserve**: a reserve fund is established by the originator which is intended to cover any losses or temporary shortfall in cash receipts.
- **Rated counterparties**: swap counterparty, liquidity counterparty should not add more risk to the structure
- **Back-up servicer**: a figure is expected to replace the originator in the role of servicer in case of irregularity or impossibility to continue this task.
- **Pool deterioration risk**: early amortization mechanisms, trigger events or stringent credit selection criteria.

In order to make the structure more efficient the structure, the characteristics of the ABS must reflect the characteristics of the cash flows of the underlying portfolio, in terms of duration, repayment of the capital, interest rate and periodicity of the coupons.

Credit enhancement

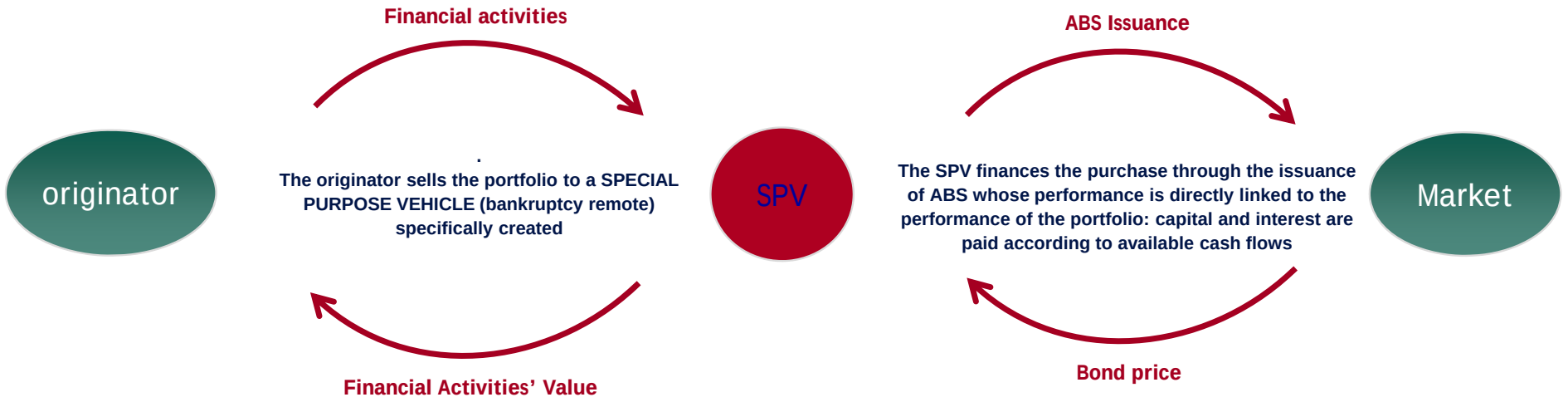
- In a securitization the **credit quality of the portfolio** determines the performance of the bonds issued and therefore affects the probability that the principal and the interests of the securities will be paid in full and according to the expected timing
- In order to improve the credit quality of the transaction and thus protect investors from risks of insolvency or illiquidity, forms of enhancement mechanisms are incorporated into the structure (credit enhancement)
- Credit enhancement allows the structure to absorb any default while maintaining the quality of the securities: the credit quality of the ABS will therefore be greater than that obtainable by the issuer or that of the underlying asset pool

Credit enhancement mechanisms

- **Subordinated securities**: the issue consists of classes of bonds with different repayment priority, the subordinated classes absorb any losses (first loss) protecting the senior classes.
- **Overcollateralization**: issue of securities for an amount lower than the nominal value of the underlying assets.
- **Excess Spread**: the issue pays lower interest than the underlying assets, the difference (excess spread) is used as a reserve to amortize or offset losses.

Cash deals - Real life examples

Cash SME ABS - 2017



Portfolio management

- Servicer
- Liquidity provider
- Cash Manager
- Swap/cap counterparty

SMEs loans Portfolio

Structuring & bond issuance:

- Arranger & Lead manager
- Rating agencies
- Legal Counsel

Class A - AAA

Class B - A

Class C - BBB

Class D – NR

Other counterparties:

- Calculation Agent
- Paying Agent
- Trustee

Controls:

- Banca d'Italia
- Società di revisione

The rating process

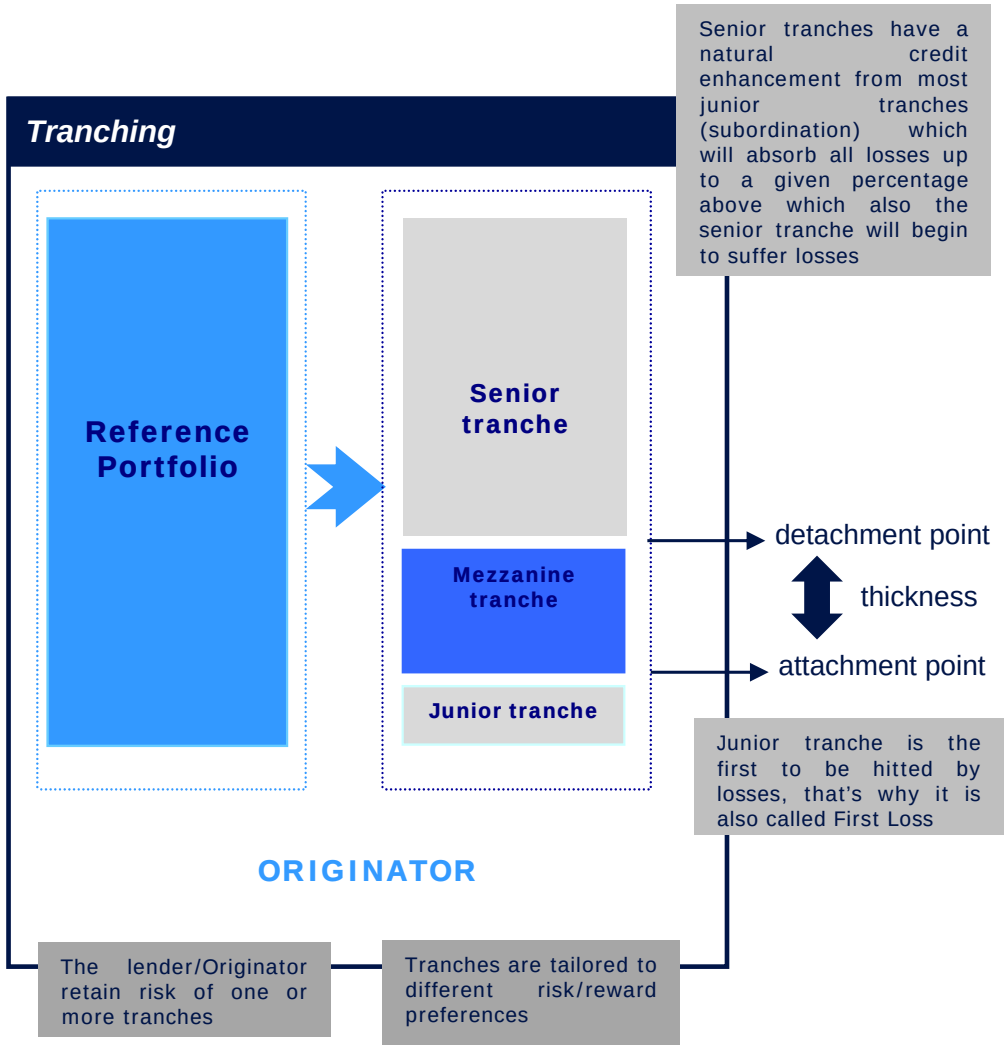
- Rating is assigned after a detailed process of analysis of the transaction by one or more external and independent rating agencies (Standard & Poor's, Moody's, DBRS and Fitch)
- Rating agencies analyze transactions in all respects assuming **scenarios that are worse than expected** in order to verify the structure's soundness, determining and quantifying the guarantees necessary to ensure the best coverage for the ABS
- The three aspects are fundamental in the rating process of Asset Backed operations are:
  - the quality of the portfolio
  - the soundness of the legal, fiscal and financial structure
  - guarantees placed to protect investors
- Valuation criteria depend of the **asset class** of the underlying portfolio
- Granular portfolios evaluation is based on statistical analysis of the **historical performance** of a similar portfolio: historical analysis makes it possible to analyze the trend of collections, insolvencies, delays, amounts recovered, the timing of recoveries and therefore the change over time of the portfolio's performance
- These parameters will then be used as a starting point in a **cash flow model** that will allow forecasts of the timing of collections and the expected loss of the portfolio.
- Depending on the **expected loss**, the rating agencies assign to the portfolio the amount of subordination necessary to issue bonds with a certain rating

Securitisation – a synthetic deal

What is a synthetic securitisation

How does it work?

- The portfolio is retained by the Originator but it is well identified and agreed between the parties. No more Asset and Liabilities. Only the risk of specific tranches is transferred
- The Investor «sell protection» to the Originator on a specific tranche for a fixed annual rate
- The Originator can call the guarantee only after a credit event (default). Definition of credit event – typical events include failure to pay after 90 days, restructuring or bankruptcy
- Investor will pay for default only when the cumulative defaults on the portfolio exceeds the "attachment point" and until they are below the "detachment point"
- Credit protection payment timing and amount could be immediately after default, after a pre-defined period after default, or after final loss determination. The amount paid could be the full amount of the defaulted asset, the ultimate loss amount, or some fixed amount.
- Moral hazard – many of the calculations are often performed by the protection buyer as calculation agent, creating a conflict of interest. Third party verification can help reduce this risk. A potential alternative is setting a fixed amount of a pay-out within a predetermined time from the occurrence of a credit event.
- One or more tranches could be involved that are tailor made between the parties



Market and History

From the subprime crisis on

- Renewed attention was also emphasized by the supranational regulators / bodies that requested: the alignment of interests for the ABS issuers (retention rule)
  high transparency of data and performance
- ABS investors have to perform an in-depth analysis of the transactions and the exposures underlying them:
  - before taking positions towards each securitization transaction
  - for as long as the same positions are kept in the portfolio
- It is forbidden to take positions towards securitization transactions for which it is not available or is deemed not to have sufficient information to comply with regulatory obligations

For reference see also :
“The big short” (2010) and “Margin Call” (2011)

Tranched credit products are often associated with the subprime crisis of 2007-2008, when the originate-to-distribute business model, coupled with sloppy origination processes and questionable modeling assumptions, contributed to a world-scale financial disaster.
The outstanding volume of structured products reached $900 billion in 2007

The reasons for the creation of the “bubble” in the U.S.A. housing market are the low-interest rates, the government policy for house ownership and the relaxation of lending standards.

Subprime because the borrower has low (or no) income, no job, problems in his credit history and no asset (NINJA).
Some mortgages had a “teaser rate” or discount initial rate.
After the discount period, lots of borrowers defaulted because they could not pay their loans with high interest.
This led a lot of borrowers to sell their houses. The prices went down and the bubble revealed

Credit Performance

Given the same rating a corporate bond and an ABS tranche have not the same risk

- Tranching mechanism, which distributes the losses of a portfolio in a non-proportional way starting from the most subordinated tranches, changes the leverage effect of the systemic risk
- As a result, a tranche of ABS is significantly more exposed to credit crunch phases than a corporate bond with the same rating and this significantly affects both the performance and the liquidity of the securities.
- The rating of this type of transaction has a different meaning than the usual one for this reason, following the subprime crisis, the suffix "Sf" (Structured Finance) was introduced to differentiate the ratings assigned to the structured finance operations from the fundamental ones
- Anyhow Moody's review: '*Of 10,044 structured finance issues* rated between 1 Jan 2009 and 30 June 2014, *only 9 have become impaired*". None of these tranches was ever rated investment grade, leaving the investment grade impairment rate at 0% for all vintages and investment horizons.

Matrice di transizione annuale corporate

From/to	AAA	AA	A	BBB	BB	B	CCC/C	D	NR
AAA	90.48	9.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AA	0.00	94.08	2.49	0.00	0.00	0.00	0.00	0.00	3.43
A	0.00	1.17	91.91	3.58	0.08	0.08	0.00	0.00	3.19
BBB	0.00	0.06	3.79	89.76	2.37	0.12	0.00	0.00	3.91
BB	0.00	0.00	0.00	5.10	82.00	4.64	0.00	0.09	8.16
B	0.00	0.00	0.00	0.18	5.65	77.96	4.36	1.60	10.25
CCC/C	0.00	0.00	0.00	0.00	0.00	10.13	46.20	23.42	20.25

Matrice di transizione annuale ABS

From/to	Beginning number of ratings	AAA	AA	A	BBB	BB	B	CCC	CC	C	D	NR
AAA	597	67.00	0.00	0.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	32.66
AA	1,226	1.22	79.69	1.47	0.08	0.24	0.00	0.00	0.08	0.00	0.00	17.21
A	1,293	0.15	6.96	76.95	1.31	0.15	0.15	0.00	0.31	0.00	0.08	13.92
BBB	663	0.15	3.47	9.95	66.37	2.11	0.45	0.45	0.00	0.00	0.15	16.89
BB	192	0.00	1.04	4.69	4.17	64.58	10.42	3.65	1.04	0.00	0.52	9.90
B	213	0.00	0.00	3.76	1.41	4.23	69.48	11.27	0.94	0.00	0.94	7.98
CCC	169	0.00	0.00	0.00	0.00	0.00	0.59	86.39	2.37	0.00	5.92	4.73
CC	93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	69.89	0.00	24.73	5.38

Type of transactions

CDP's role – Why and what we do?

Asset securitization represents a powerful structuring tool that can be used to deal with credit risk in an effective way, creating a leverage effect that activates new resources and new lending supporting the economic system

Why?

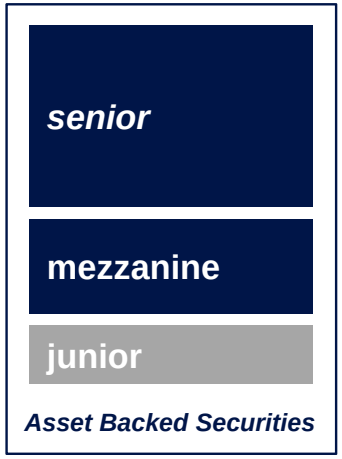
- Catalytic effect to attract private investors
- Additionality: to create conditions for new lending

What do we do?

- Purchase of notes issued in a cash securitization
- Guarantee a predefined class of notes (tranche) in a synthetic securitization
- Sustain portfolio ramp-up in a warehousing transaction

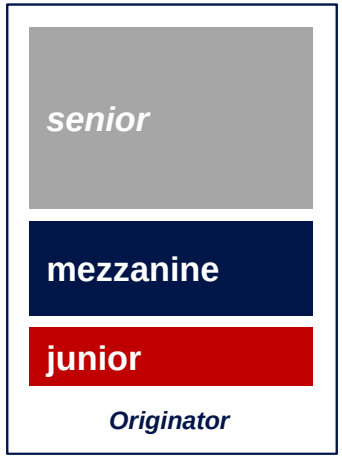
Asset Backed Securities outright purchase

- SME ABS or RMBS public or privately placed
- Senior and mezzanine



Synthetic Balancesheet SME Securitisation

- Mezzanine guarantee
- Junior provided by National Funds/European Funds/Regional Funds



Real Life examples

Residential Mortgage Back Securities

- Most simple kind of asset securititzation residential mortgages are loans granted to individuals for residential mortgages
- The credit quality of a loan portfolio depends on:
  - characteristics of the creditors (for example the installment paid according to salary) which give indications on the probability of insolvency
  - characteristics of the loan and mortgage (for example, the amount of the loan to value of the property) that give information on the extent of the loss the case of insolvency
- These information allow to estimate the probability distribution of portfolio losses during the life of the transaction and also delays, pre-payments, recovery times, scenarios are estimated

Most used as collateral of securitization transactions
as commercial banks now use securitization systematically to finance the provision of new mortgages efficiently

Real Life examples

Non Performing Loans

- Non-performing loans (NPL) are loans for which the contractual repayment plan is no longer followed because the debtor has stopped paying and for which therefore the repayment is rather unlikely
- NPL can be classified into two categories:
  - NPL - secured: non-performing loans secured by a mortgage or personal guarantee, in this case the recovery process will depend on the legal proceedings and the real estate market.
  - NPL - unsecured: non-performing loans or with a mortgage of grade III or IV, in this case the recovery will depend above all on the efficiency of the servicer.

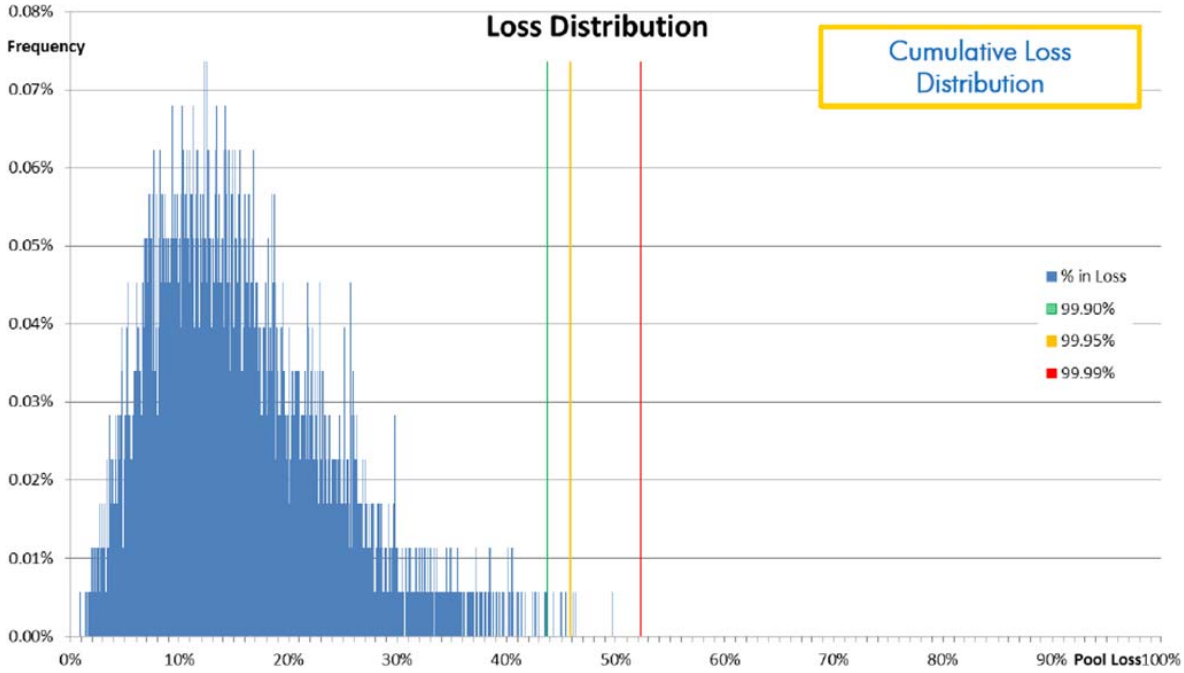
- The presence of a guarantee and its quality obviously affect the level of recoveries

Since 2016 the Italian Government has launched a State guarantee scheme on the NPls asset backed securtites tranches aiming at reducing the NPLs stock from the books of italian commercial banks (GACS - Garanzia Cartolarizzazione Sofferenze)

Risk Models

Modelling – Risk Methodology

- Forecasts on the performance of the ABS securities and on the probability of default of the securities require the expected loss distribution of the pool
- The expected loss for each individual loan is given by the product of the probability of default, ie the percentage of the portfolio that goes into insolvency over a certain period of time and loss severity, ie the amount of loss in the event of default (1 – Recovery)



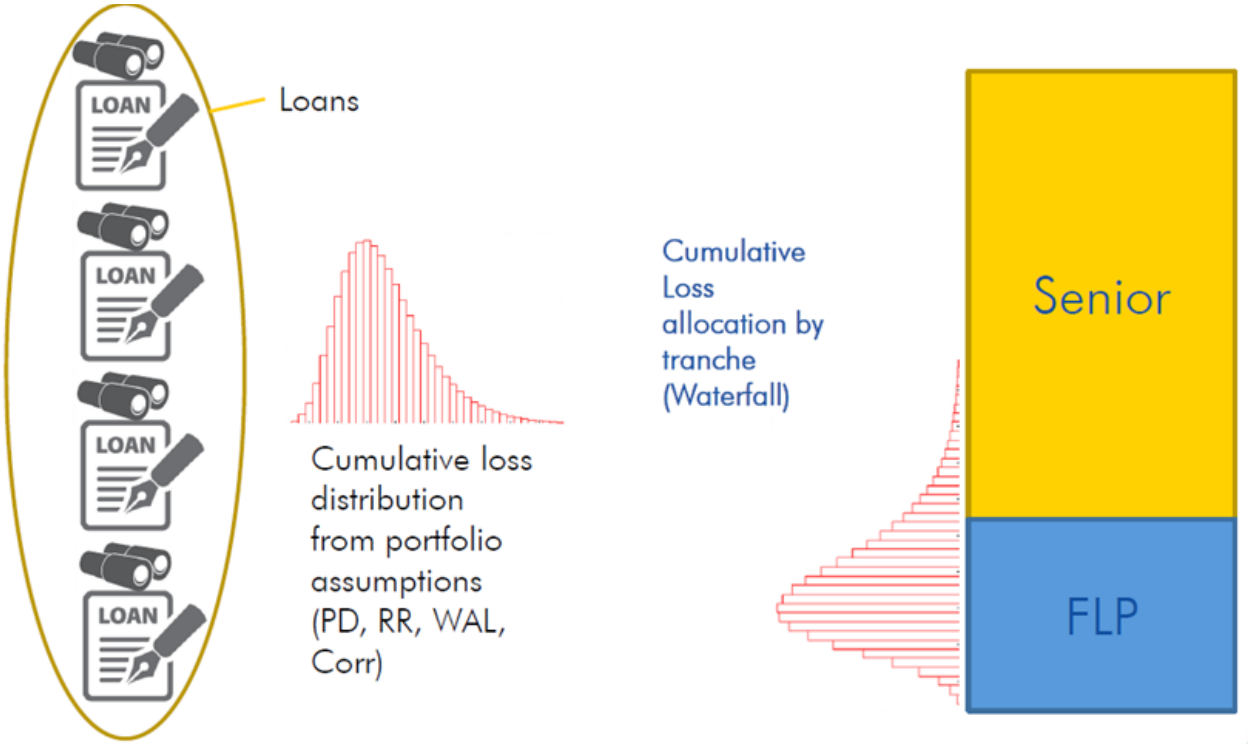
Risk methodology is based on:

- Portfolio information
- Information on past performance
- lenders' internal performance estimates
- model the "portfolio loss behavior" to assess the "tranche loss behavior"

Risk Models

Modelling –Tranching concept

- The expected loss of the pool is the sum of the expected losses of each individual loan
- The amount of subordination represents the amount of losses that the portfolio may suffer before a specific tranche is affected
- The amount of subordination is determined in such a way that the probability that this loss occurs is equivalent to the probability of default assigned to the specific rating.



Risk Models

Modelling – Tranche Loss Behaviour