Ratings in structured finance

"Management Bancaire" – François Longin

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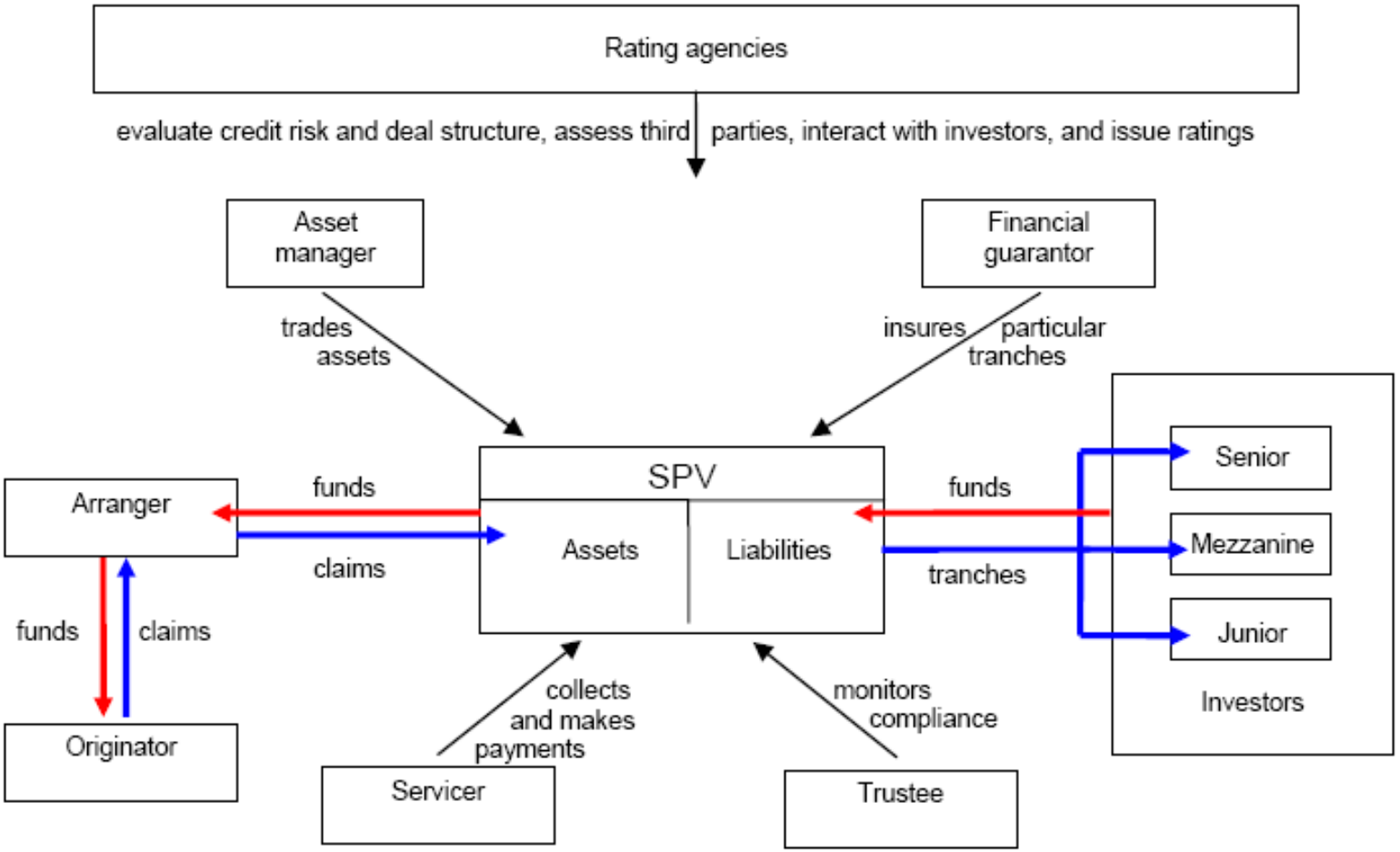
Definitions

- ***Pooling***:
  The pooling of assets is the act of assembling assets or financial instruments into pools which can be offered through a special purpose vehicle (SPV) to third party investors. These pools will form the assets of the SPV.

- ***Tranching***:
  The tranches are the underlying capital structure of the liability side of an SPV. Tranches of different seniority (i.e. repayment priority) of a structured product are defined by riskiness and thickness, rated and finally sold to investors. The tranching allows selling one pool of assets via different kinds of products to investors with distinct risk appetite.

- ***De-linking***:
  With de-linking is meant the separation the credit risk of a collateral asset pool from the credit risk of its originator. This is done by creating a bankruptcy-remote special purpose vehicle (SPV) which legally isolates the risk of the asset pool from its originator. This offers investors the possibility to invest in assets of an originator without taking into account the risk of the originator and the market he operates in.

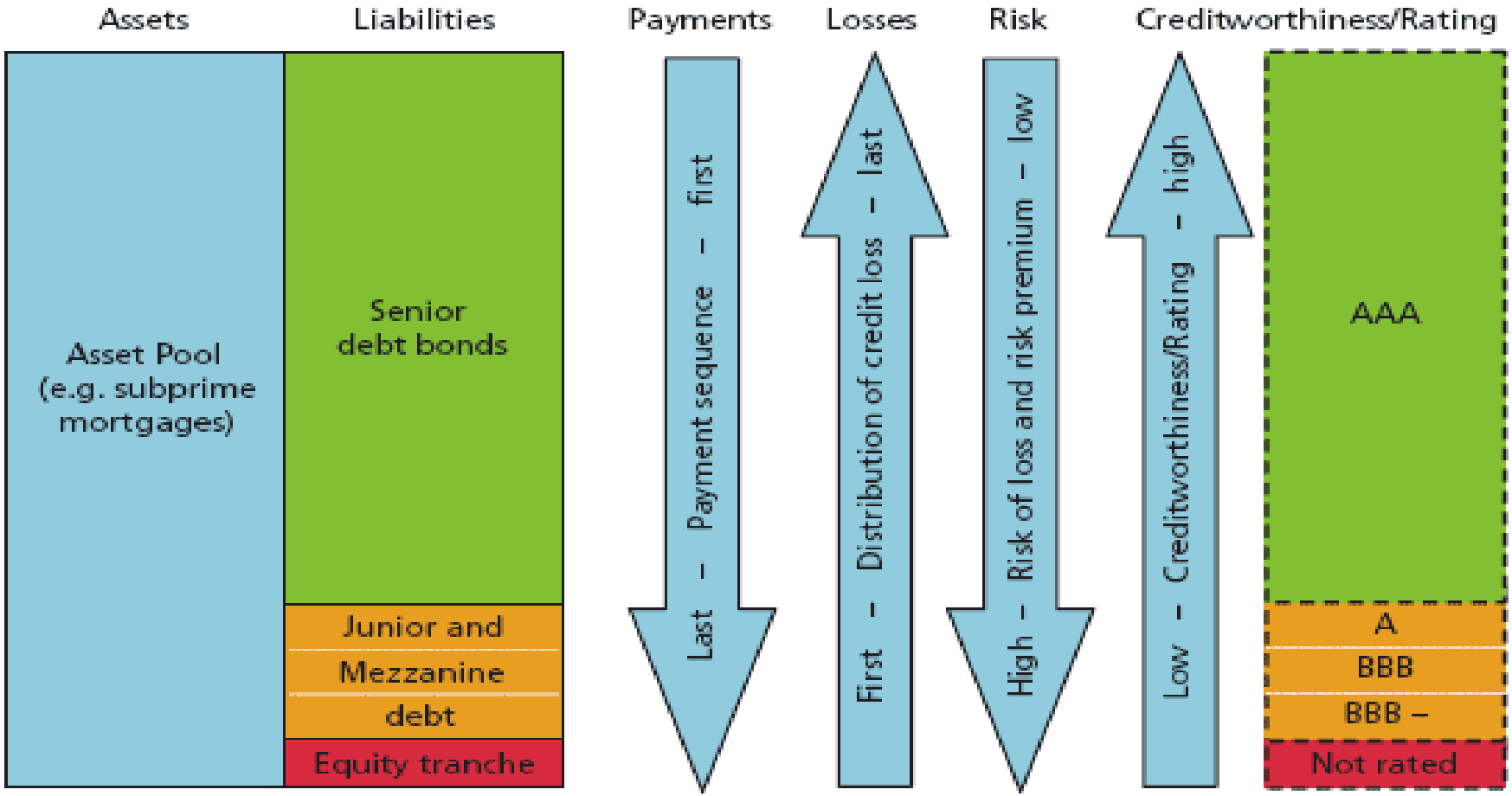
Key market participants



Asset backed securities (ABSs)

- **bond or note based on a pool of assets** or collateralized by the cash flow of its underlying assets
- **large** and **well diversified** homogeneous asset pools
- **high granularity**
- different **tranches** with different ratings, risks and structured cash flows

Structure


Assets
Liabilities
Payments
Losses
Risk
Creditworthiness/Rating
Asset Pool (e.g. subprime mortgages)
Senior debt bonds
Junior and Mezzanine debt
Equity tranche
Last – Payment sequence – first
First – Distribution of credit loss – last
High – Risk of loss and risk premium – low
Low – Creditworthiness/Rating – high
AAA
A
BBB
BBB –
Not rated

Mortgage backed securities (MBS)

- **MBSs are asset backed securities** whose cash flows are generated by a large pool of **mortgage loans**
- There are two types of MBSs:
  - Residential Mortgage Backed Securities (**RMBS**) which are secured by consumer properties
  - Commercial Mortgage Backed Securities (**CMBS**) which are secured by commercial and multifamily properties

Collateralized Debt Obligations (CDOs)

- CDOs are **custom-tailored structured products**
- Assets of a CDOs' SPV consist of **other financial products such as ABS, MBS or even other CDOs or indices**
- **smaller number of non-homogeneous assets**
- **low granularity**

Traditional credit ratings vs. Structured finance ratings (1)

The goal of a rating processs is the assignment of a measure of creditworthiness & default risk of the financial instrument issued by the respective entity.

- Traditional bond ratings:
  - Anaysis focussed on issuer (corporation, sovereigns, etc.), structural features etc.
  - Limited quantitative analysis
  - result of rating process: rating agency‘s assesment of default risk (unilateral approach)

Traditional credit ratings vs. Structured finance ratings (2)

- Structured finance ratings:
  - Analysis focussed on structure of transaction
  - Quantitative models support rating agency‘s assesment
  - Issuer/arranger targets a capital structure/rating profile **ex ante** and uses established rating agency models

→ **Iterative process**

After analyst reviews, a **credit committee** decides about the final rating. Once a deal is closed this decision is reviewed and monitored on a regular basis for eventual downgrades (or upgrades).

Two-step approach for rating structured products

All three major rating agencies (Standard & Poor‘s, Moody‘s, Fitch) use a two-step approach for rating both ABSs and CDOs:

- **credit risk modelling**
- **structural analysis**

Credit risk modelling: Focus on asset pool using three main inputs to estimate the ***expected loss*** of a pool and its distribution:

- ***Probabilities of default*** (PD) of the single assets in the pool and the common probability of default
- ***Recovery rates*** (RR) of the single assets as well as common recovery rates (or *losses-given-default* (LDGs) = 1-RR)
- ***Default correlations*** within the pool (determine the tendency of multiple defaults to occur within a given period of time)

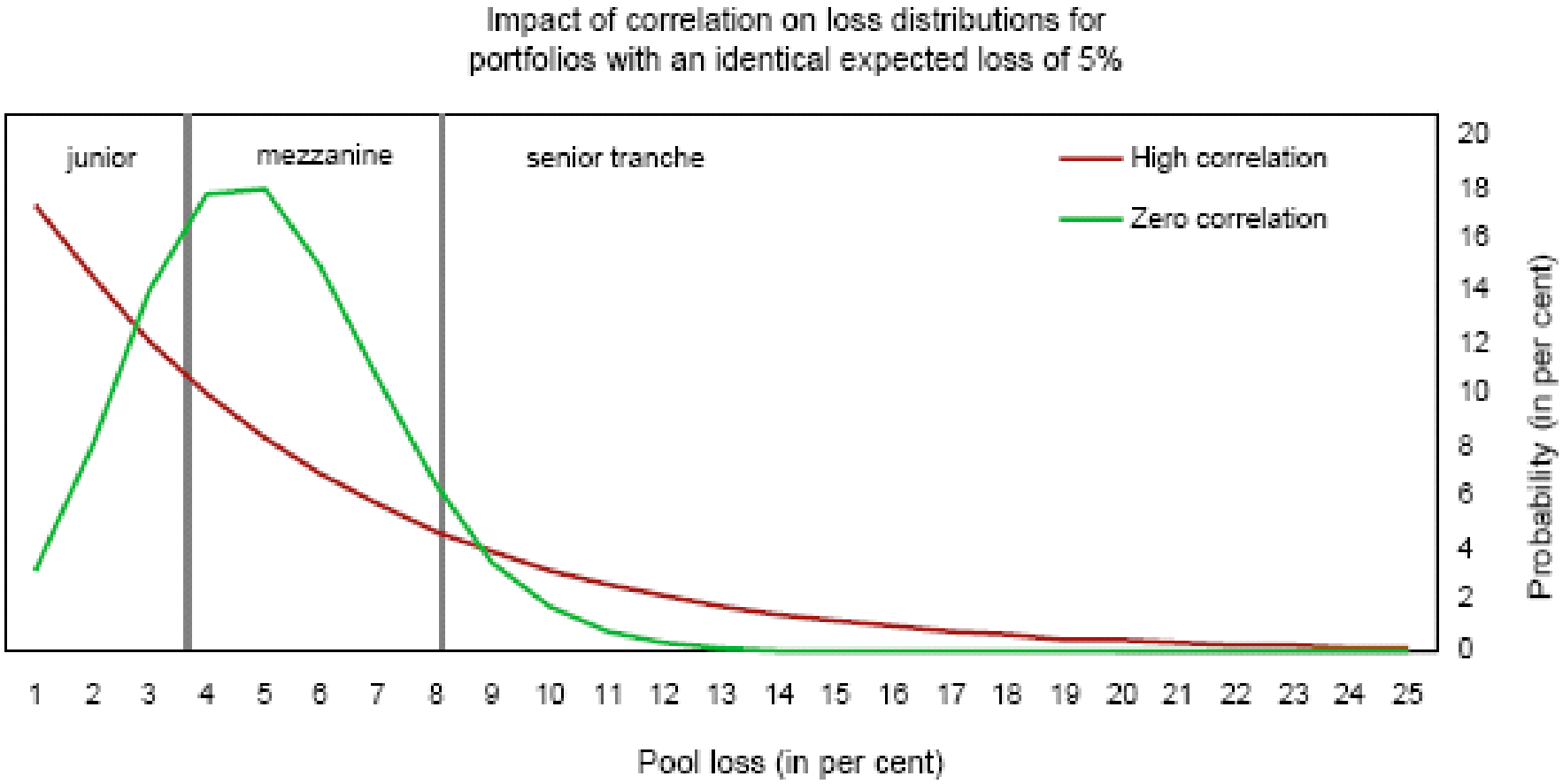
Structural analysis: Focus on distribution of cash outflows to investors and cash inflows from underlying pool assets

Credit risk modelling: Risk properties of ABSs and CDOs

While **ABS portfolios** are **large and well diversified, CDO portfolios** are smaller and **lumpier** and made up of **heterogeneous** assets => for CDOs, **correlation** is critical!

- **If** the **correlation** of the assets in pool is **low => probability of small defaults** is comparatively **high** and **losses for the senior tranche are rather unlikely (**junior tranches will absorb these losses)
- **If** the **correlation is high**, the behavior of the single assets in the portfolio is more comparable to one single asset: **if one portfolio asset defaults, all the others are very likely to default, too**, => shift of risks towards senior tranches.

Credit risk modelling: Risk properties of ABSs and CDOs



Structural analysis

Principal risk factors:

- ***Market risks*** (prepayment risk for MBS, interest rate risk, exchange risk, etc.)
- ***Third-party risks*** (operational and performance risks, of manager, servicer and other parties included into the deal structure)
- ***Legal risk*** (risks relating to the SPV, its bankruptcy remoteness, etc.)

Criticism & Subprime crisis 2007

- CDOs **are comparatively new products** for many investors
- Lack of data
- Basing of rating models on **short time series**
- **AAA/Aaa** rating class is normally reserved to **government bonds** and comparably infallible securities
- Rating agencies **gain a lot of money** in this new structured product branche
- Important **conflict of interest** between agencies' interests and those of investors

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Thank you for your attention!

Questions? Comments?