Strumenti per la riduzione della volatilità in ambito Solvency2

Determinazione del Risk Free Rate

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DIRECTIVE 2009/138/EC

Art. 76 General provision
…the calculation of technical provisions shall make use of and **be consistent with information provided by the financial markets** and generally available data on underwriting risks (market consistency)…..

Art. 77 Calculation of technical provision (TP)
The best estimate shall correspond to the probability-weighted average of future cash-flows, taking account of the time value of money (expected present value of future cash-flows), using **the relevant risk-free interest rate term structure**.

General Solvency2 Principle: «same risk, same rules, same value»

The Present Value of the same net cashflows in different countries with the same currency has the same value:

Example:

- The value doesn't depend on the asset backing TP
- The Risk free is the same for German and Italian policies
- The TP of a pure risk contract, sold in Germany and Italy, with the same net cashflows, is the same in both Countries.

Level 2 Draft Implementing Measure

The rates of the relevant risk-free interest rate term structure to calculate the best estimate with respect to insurance or reinsurance obligations, as referred to in Article 77(2) of Directive 2009/138/EC, shall be calculated **as the sum of**:

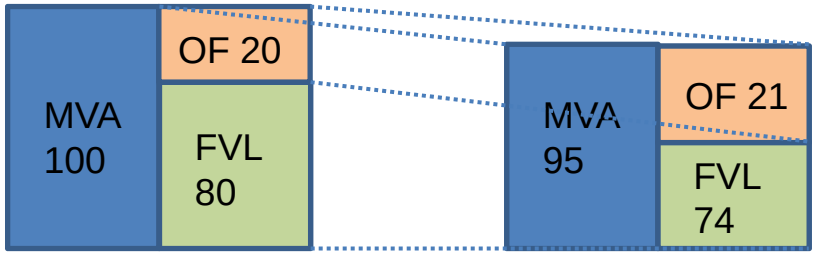
- the rates of a basic risk-free interest rate term structure;
- where applicable, a **counter-cyclical premium**
- where applicable, a **matching premium**

For each relevant currency, **EIOPA shall derive and publish**:

- the basic risk-free interest rate term structure referred to in point (a) of paragraph 1;
- the **counter-cyclical premium** referred to in paragraph 1 of Article IR6;
- the **ultimate forward rate** referred to in paragraph 2 of Article IR4.

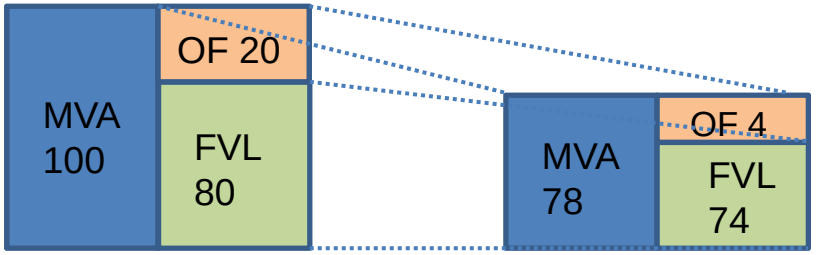
EXAMPLE *(first part)*

Market Value Asset YE10: 100 (100% Government Bond, *duration 5*)
Fair Value of Liabilities YE10: 80 (*duration 7*)
Risk Free (swap) YE10 = 2%
Spread between Government Bond and Swap = 0 bps
Risk Free (swap) YE11 = 3%



CASE A: German Company invested in BUND
At YE11 no additional spread between BUND and SWAP

The increase of OF is due to the duration gap



CASE B Italian Company invested in BTP
At YE11 the spread between BTP and SWAP increases by 400 bps

The Fair Value of Liabilities are the same for both Companies because the risk free rate is the same
The impact in the Own Fund is different due to the different asset backing liabilities.

Why does the Industry need an appropriate risk free rate?

The risk free rate term structure is one of the most critical areas of Solvency2 framework.

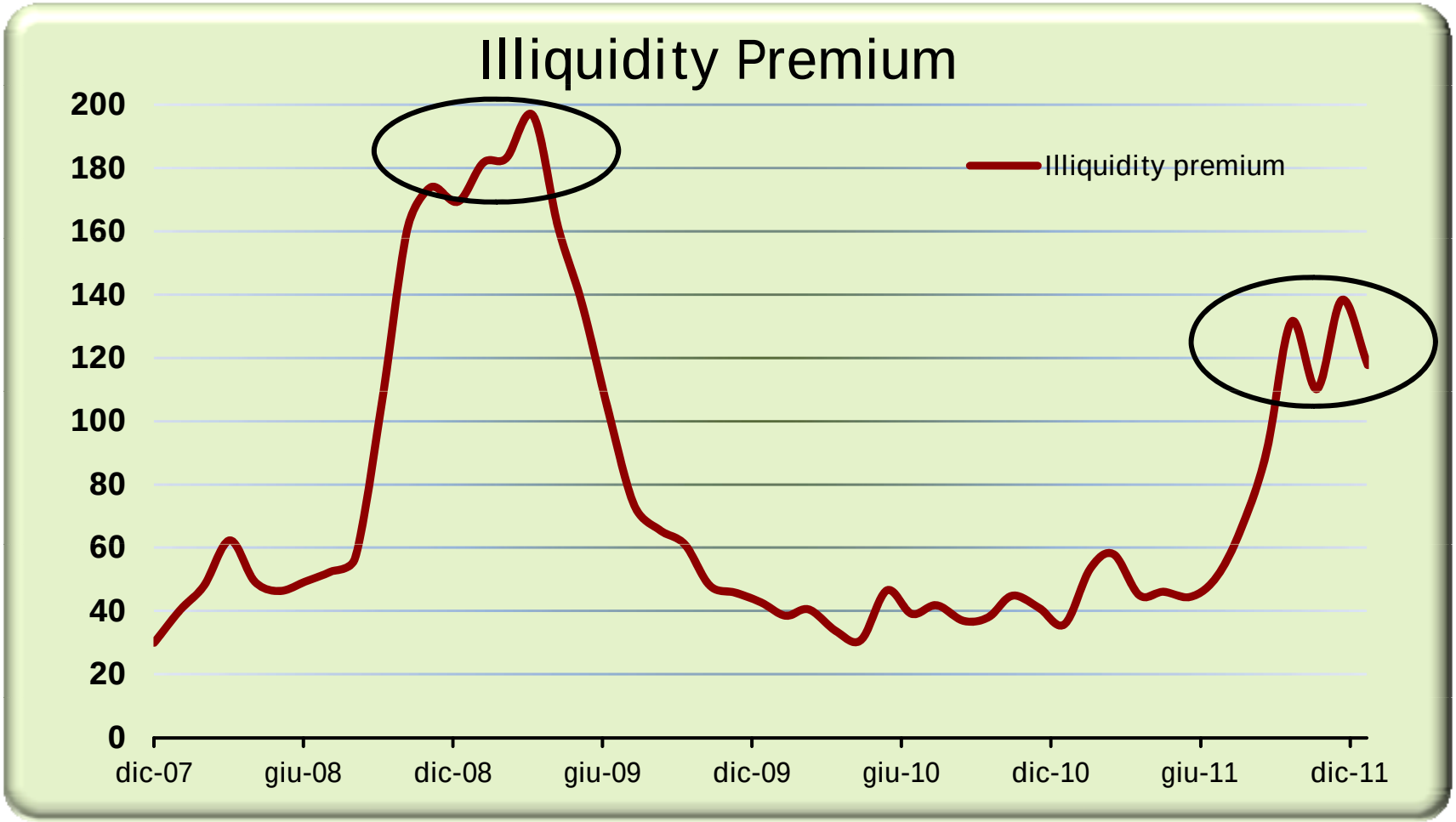
The European Commission has defined in the QIS5 TS the risk free rate as
«SWAP – 10 bps + ILLIQUIDITY PREMIUM * %bucket»

BUT

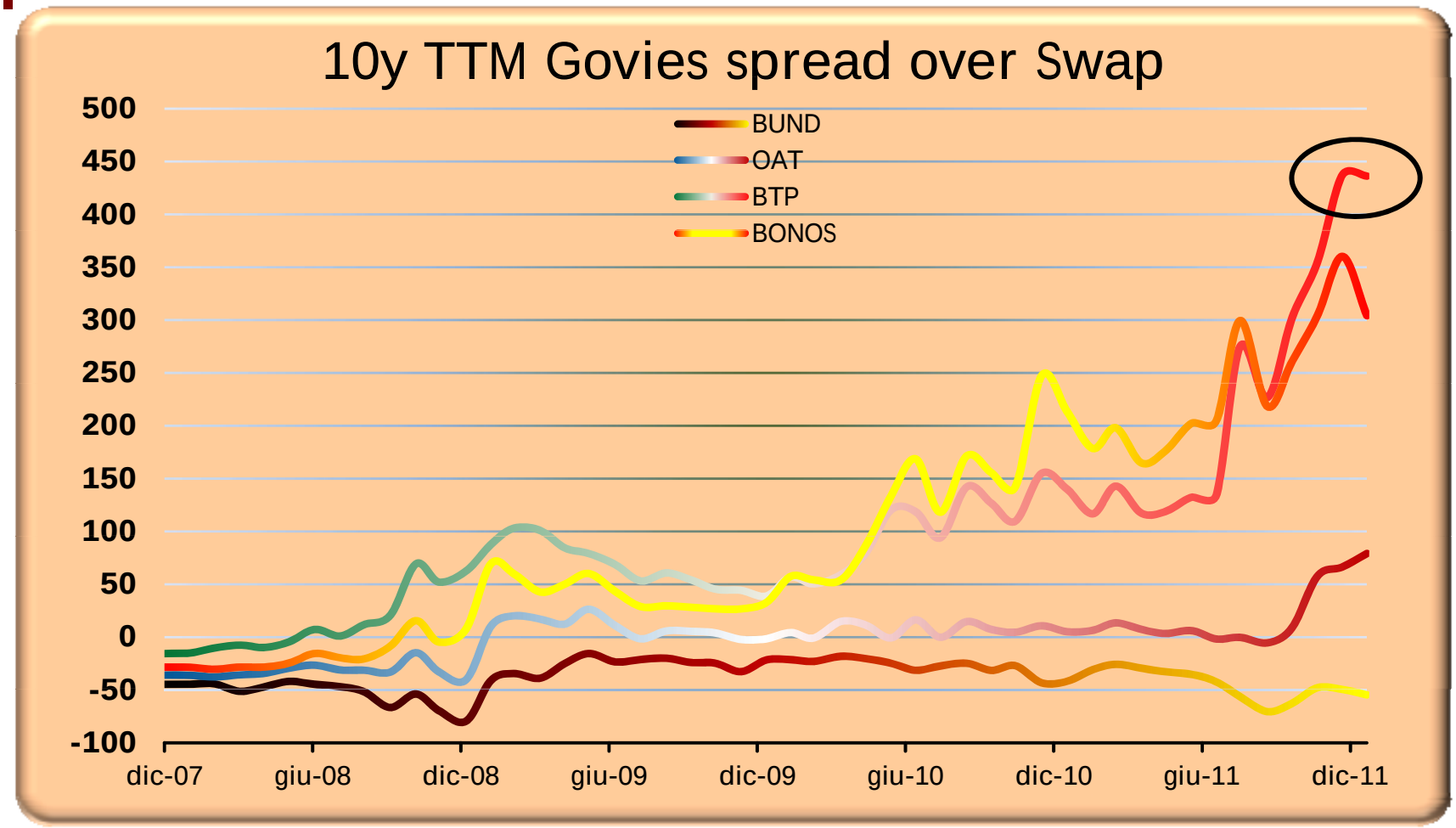
The recent volatility in the financial market requests a «**predictable counter-cyclical mechanism**» to reduce the volatility without producing other undesirable effects

Without a predictable counter-cyclical mechanism, insurers will be faced with uncertainty in managing risk which may lead to improper risk management (forced sale of assets and inappropriate ALM).

Illiquidity premium with QIS5 formula



Government spread over swap



When is the counter-cyclical premium (CCP) applicable?

In periods of stressed financial markets as determined by EIOPA, the risk-free rates should include a **CCP** to reflect temporary distortions in spreads caused by illiquidity of the market or extreme widening of credit spreads, in particular in relation to **government bonds**, in order to avoid pro-cyclical behaviour of insurance and reinsurance undertakings.

Industry proposal

Companies need a pre-defined trigger to correctly evaluate the Fair Value of Liabilities - Solvency Capital Requirement and to put in place Risk Management actions to manage/reduce the risk.

How should the CCP be evaluated?

For each currency, **the counter-cyclical premium** shall be calculated in a transparent, prudent, reliable and objective manner as a portion of the spread between the interest rate that could be earned from assets included in a representative portfolio of assets that insurance and reinsurance undertakings are invested in and the rates of the basic risk-free interest rate term structure. The portion shall not be attributable to a realistic assessment of expected losses or unexpected credit risk on the assets. The portion shall not be attributable to any other risk.

INDUSTRY PROPOSAL: The counter-cyclical premium is determined based on the following components:

1. an illiquidity premium
2. a government spread premium
3. an additional discretionary component.

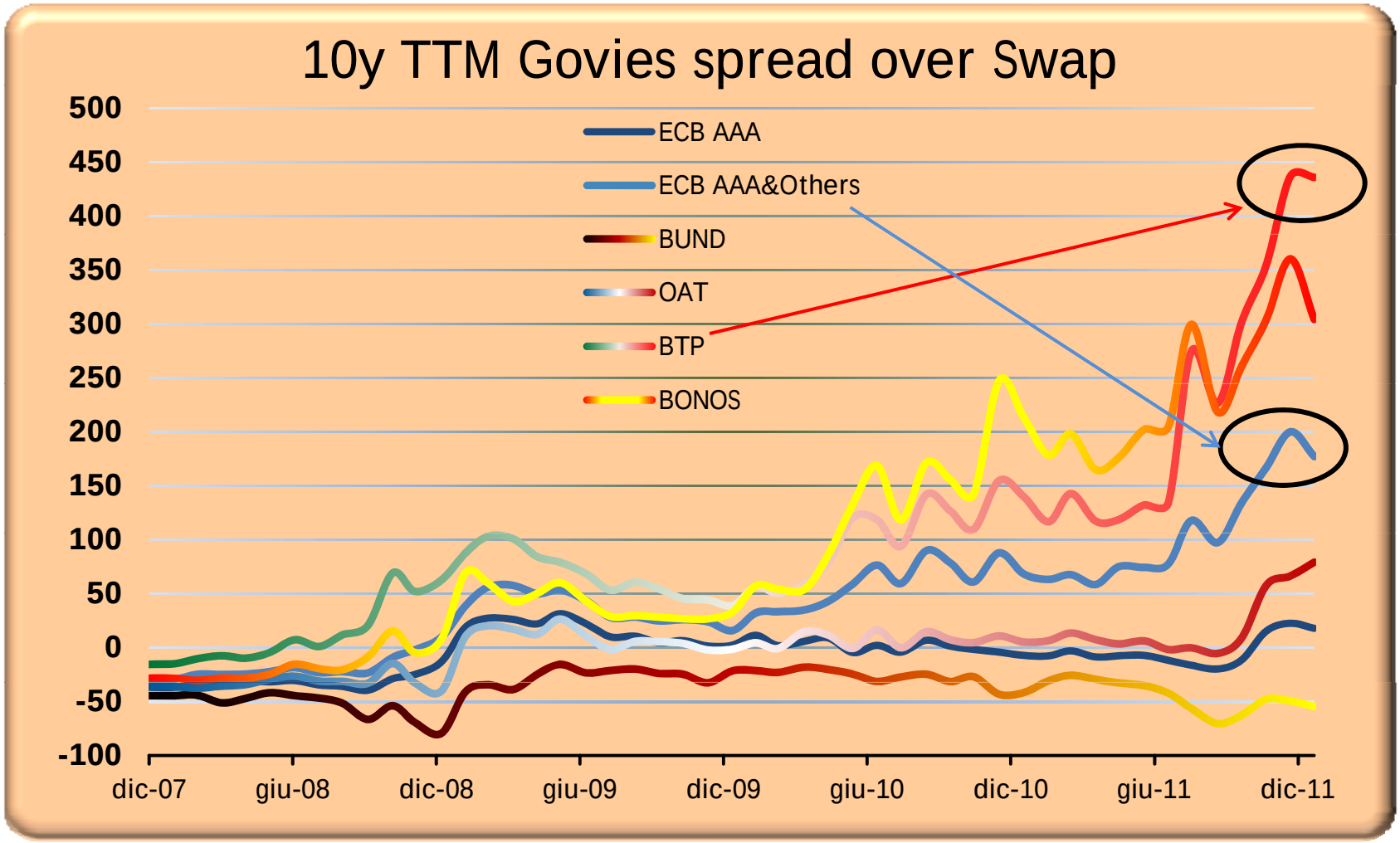
Under market conditions similar to those at the date of adoption of this Regulation the illiquidity premium and government spread premium components of the counter-cyclical premium could be:

Function of

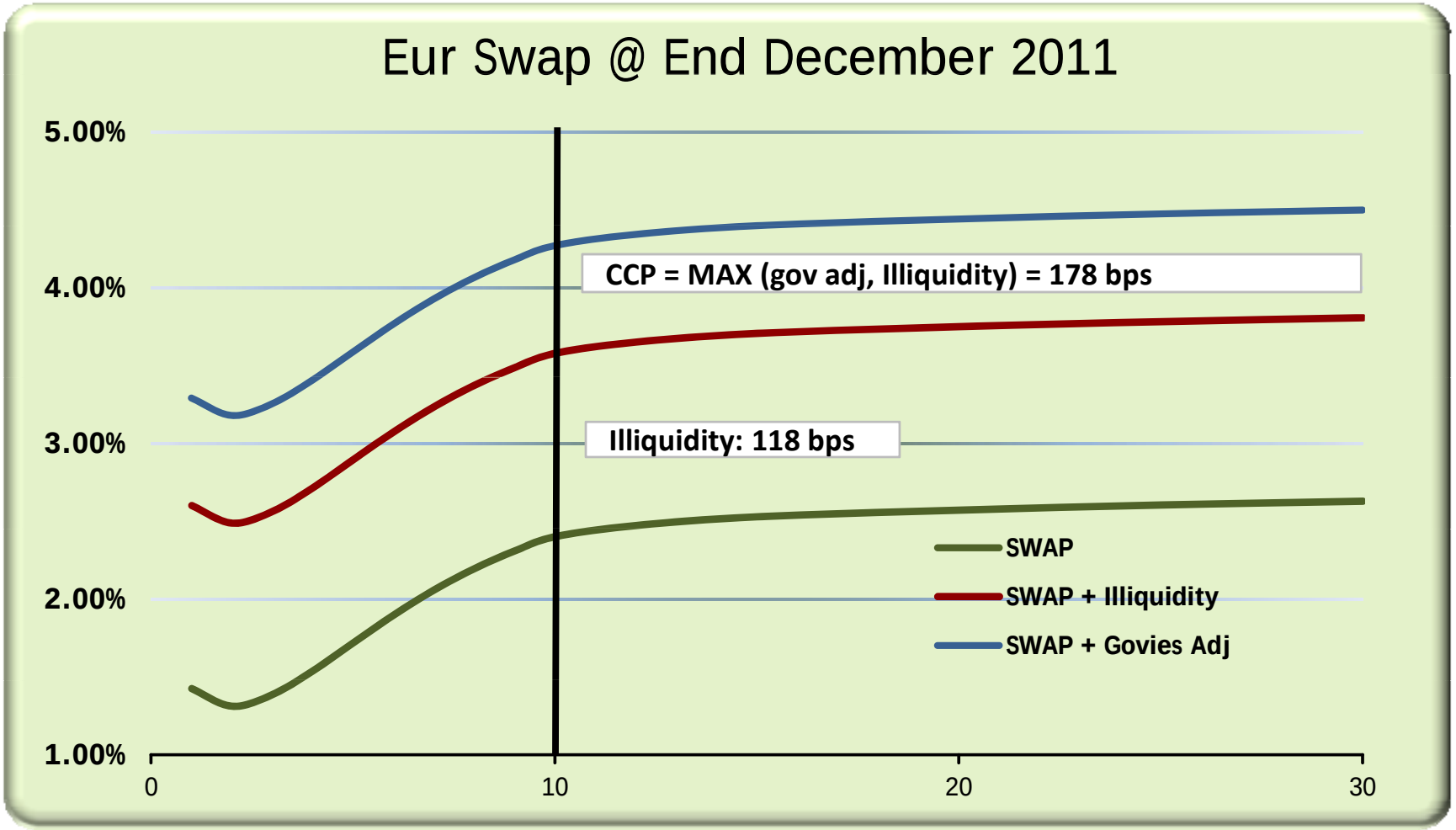
- MAX (0 ; 50% * (*spread over swaps* – 0.4%))
- MAX (0 ; "ECB AAA and other government curve" - swap)

THE ADJUSTMENT DOESN'T DEPEND ON ASSET BACKING LIABILITIES

ECB government curves

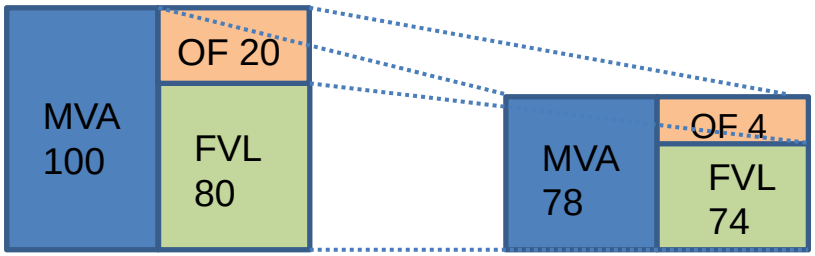


Which Risk Free Rate curves?



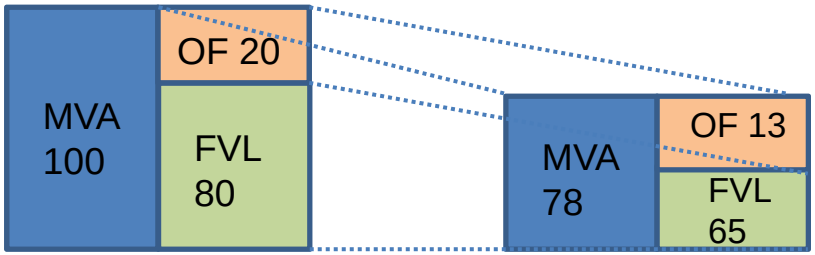
EXAMPLE *(second part)*

Market Value Asset YE10: 100 (100% Government Bond, *duration 5*)
Fair Value of Liabilities YE10: 80 (*duration 7*)
Risk Free (swap) YE10 = 2%
Spread between Government Bond and Swap = 0 bps
Risk Free (swap) YE11 = 3%



CASE B: Italian Company invested in BTP without CCP

At YE11 the spread between BTP and SWAP increases by 400 bps,



CASE C: Italian Company invested in BTP with 200 bps of CCP

The loss in OF is reduced from 16 to 7.

The CCP increases the risk free rate, modifies the FVL and limits the volatility of Own Funds. An additional positive second order effect on SCR is expected.

Matching premium: when?

In case of assets and liabilities respect some specific requirements Company can use a MATCHING PREMIUM instead of CCP:
The most important requirements are:

- the insurance undertaking has assigned **a portfolio of assets**, consisting of bonds and other assets with **similar cash-flow characteristics and** replicate the expected future cash-flows of the liabilities portfolio
- the portfolios are **ring-fenced**, without any possibility of transfer;
- the MP is applicable insurance contracts do **not** give rise to **future premium** payments ;
- the only underwriting risks are **longevity and expense**; no options for the policy holder or only a **surrender option where the surrender value does not exceed the value of the assets**
- the cash-flows of the **assets** of the assigned portfolio of assets are **fixed**

For Italian Companies the matching premium, under this requirements, could be used for **"contratti con specifica provvista di attivi".**
The requirements are very burdensome and not applicable to Italian segregated fund **without changes in the L2 proposal**.

With Matching premium the risk free rate is fully related to asset backing liabilities

Matching premium: how in theory?

The matching premium shall be equal to the difference of the following:

1. the annual effective rate where applied to the cash-flows of the portfolio insurance obligations, results in a value that is equal to the value of the portfolio of assigned assets (netted of fundamental spread and probability of default);
2. the annual effective rate where applied to the cash-flows of the portfolio insurance obligations, results in a value that is equal to the value of the best estimate of the portfolio of insurance obligations where the time value is taken into account using the basic risk-free rate term structure.

The ***fundamental spread*** of a specific asset shall be equal to the sum of the following:

- ✓ the credit spread corresponding to the probability of default of the asset;
- ✓ a spread corresponding to the expected loss resulting from downgrading of the asset;

The probability of default should be based on long-term default statistics that are relevant for the asset in relation to its duration, credit quality step and asset class.

Matching premium: how in practise?

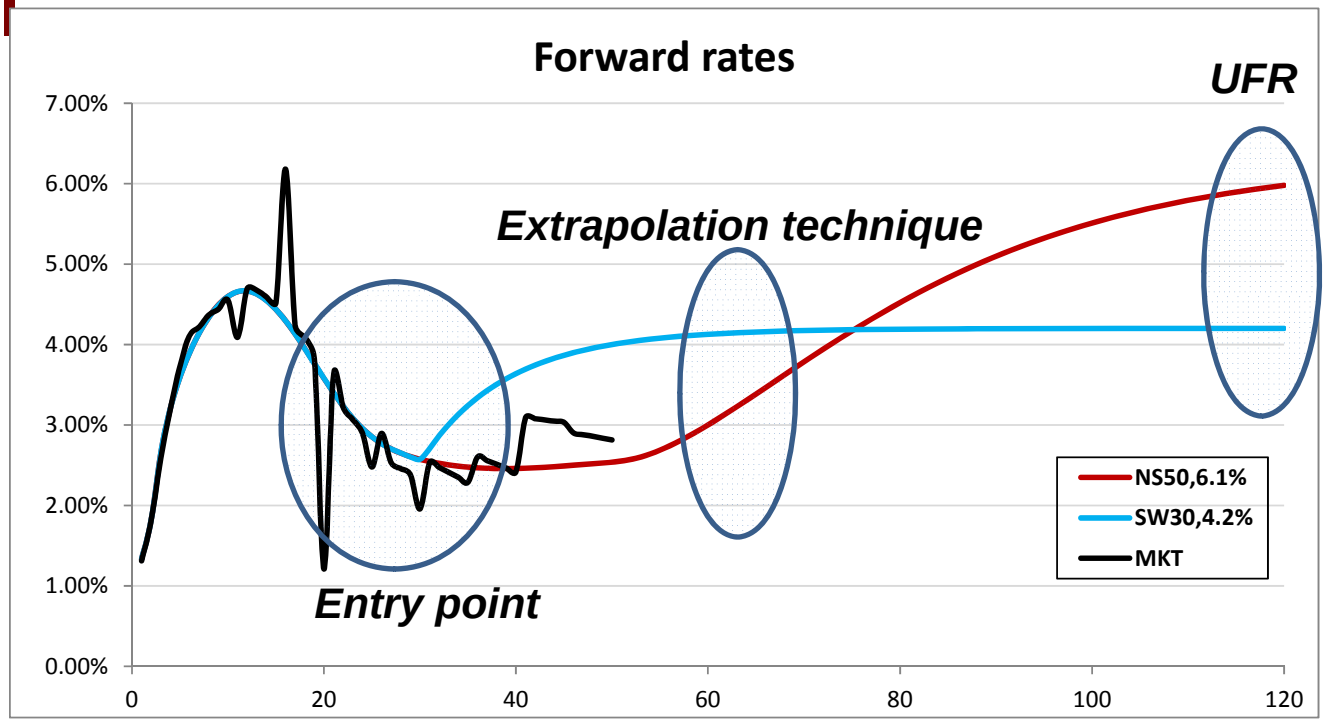
The process should be:

1. Company should define the net cash-flows of the portfolio;
2. Company should evaluate a fundamental spread and a default probability embedded in the own asset and recalculate the Internal Rate of Return netted by default probability only (de-risking)
3. Company should evaluate the Internal Rate of Return based on risk free rate curves
4. MP is the difference between the two IRR

Step	1	2	3
MVAsset	-33,00	-33,00	-35,53
t			
1	1,60	1,60	1,60
2	1,60	1,59	1,59
3	1,60	1,59	1,59
4	1,60	1,58	1,58
5	33,67	33,16	33,16
IRR	4,33%	4,02%	2,35%

Matching Premium = 4,02% - 2,35% = 1,68%

Extrapolation: some Directive highlights (1/2)



The **extrapolation technique** *(Nelson Siegel or Smith Wilson)*, the extrapolation **entry point** and the **ultimate forward rate** (UFR) are **key drivers** of the valuation, especially in case of long term business with guarantees

- How many years should I use market data for? (extrapolation entry-point)
- When I extrapolate, where do I go? (ultimate forward rate, UFR)
- When do I reach the UFR? (UFR-year)
- How do I get there? (extrapolation method)

Extrapolation: some Directive highlights (2/2)

For each currency, the **basic risk-free interest rate** term structure *(swap rate before any adjustments)* shall be determined on the basis of **all relevant observed market data**.

Some Countries propose to define at **20y the entry point for EURO**

The **ultimate forward rate** shall be **stable over time** and only change because of changes in long-term expectations.

The ultimate forward rate shall **take account of expectations of the long-term real interest rate and of expected inflation**.
The ultimate forward rate shall **not include a term premium** to reflect the additional risk of holding long-term investments.

In **40y** the swap rate should **reach the ultimate forward rate**