

Reinsurance : introduction, techniques & evolutions

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Why insurance for a big company ?

⌘ In order to protect shareholder's funds ?

⌘ No !

⌘ Top investors have diversified risks.

They do not need insurance due to its cost.

⌘ However big companies buy insurance !

Why ?

⌘ Due to their clients, employees, ...

Why insurance for an individual ?

**⌘ Because unable to diversify : one house,
one car, one salary, ...**

An alternative to insurance ?

⌘ More capital !

⌘ However you have to remunerate your shareholder's.

⌘ Insurance may be less expensive.

Reinsurance

⌘ **Insurer of insurance risks.**

⌘ **Alternative to capital for insurers.**

⌘ **Let**

**Turkey : Collapsed minaret of a mosque in Sakaria
(25/08/1**

Spain : Roofs devastated (28/12/1

**United States : Hurricane Floyd over the Bahamas
(14/09/1**

Belgium : Flood in Lessives (07/01/2

Taiwan : Singapore Airlines plane (02/11

Belgium : E17 motorway

Windstorms in France

⌘ Lothaer : 26.12.1999

Martin : 27-28.12.1999

⌘ Total market loss : 60 Billion FRF

	Non-life Pr	Loss	Ratio
⊞ AXA	36,2	3,6	10%
⊞ MAAF/MMA	19,6	2,7	14%
⊞ Small mutuals			?

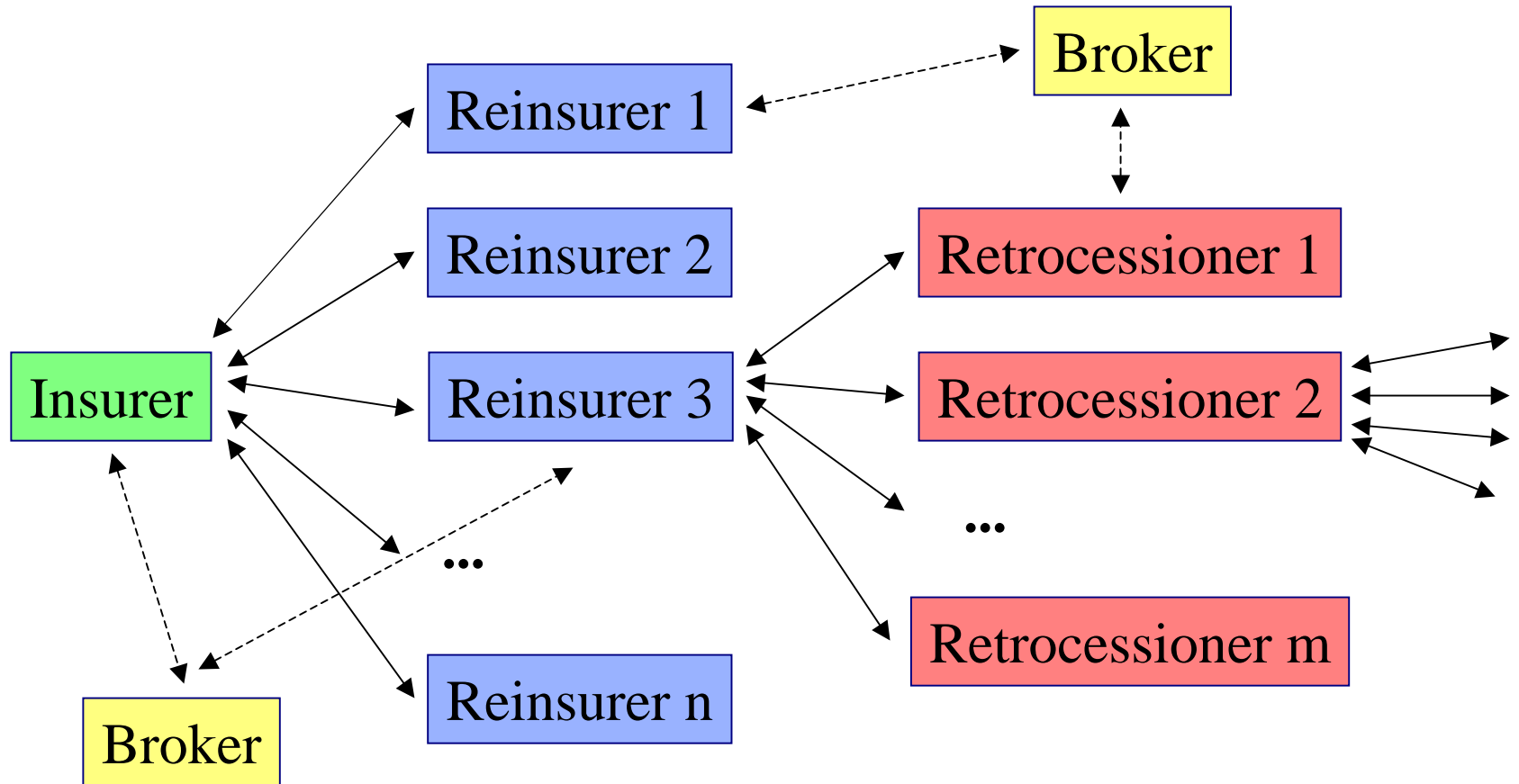
Windstorms in France

⌘ Munchener Rück :	700 Mio Euro
⌘ Swiss Re :	500
⌘ Scor :	120

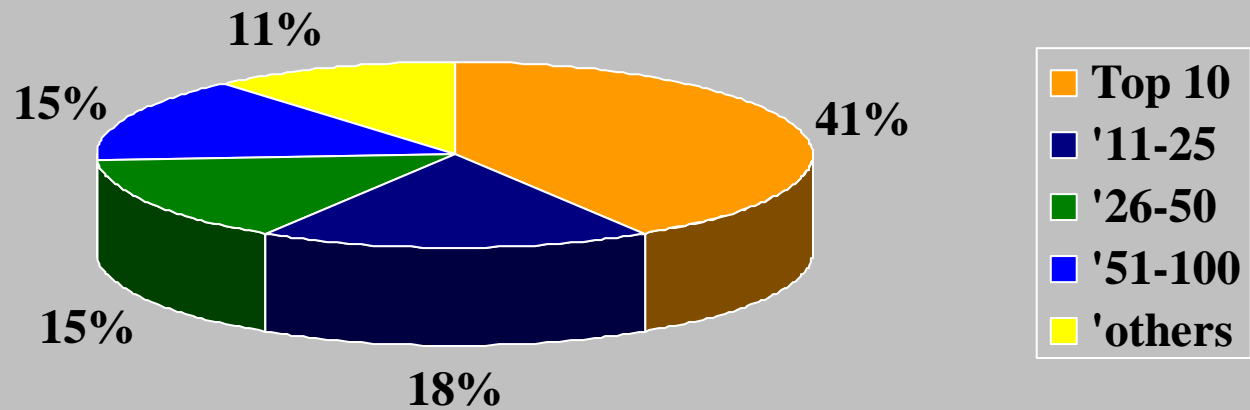
Why reinsurance

- ⌘ **Protection against catastrophic losses / big losses**
- ⌘ **Protection against accumulation of losses**
- ⌘ **Stability of the insurer's result**
- ⌘ **Increase the capacity of the insurer**
- ⌘ **Financing the growth of young insurance companies**
- ⌘ **Reducing the minimum solvency margin**
- ⌘ **Technical support**
- ⌘ **Spreading of risks**

Organisation



The reinsurance market



The reinsurance market

<i>Group</i>	Net premium (Bn USD)	Adjusted capital (Bn USD)
Munich Re	13,2	11,4
Swiss Re	11,9	9,5
Berkshire Hathaway⁽¹⁾	7,1	40,1
Employer's Re	6,0	6,0

(1) General & Cologne Re

Techniques

<i>Reinsurance</i>	Cedent	Reinsurer
Facultative	Facultative	Facultative
Treaty	Obligatory	Obligatory
Fac-ob	Facultative	Obligatory

Techniques

⌘ Proportional reinsurance

- ☑ Quota-share

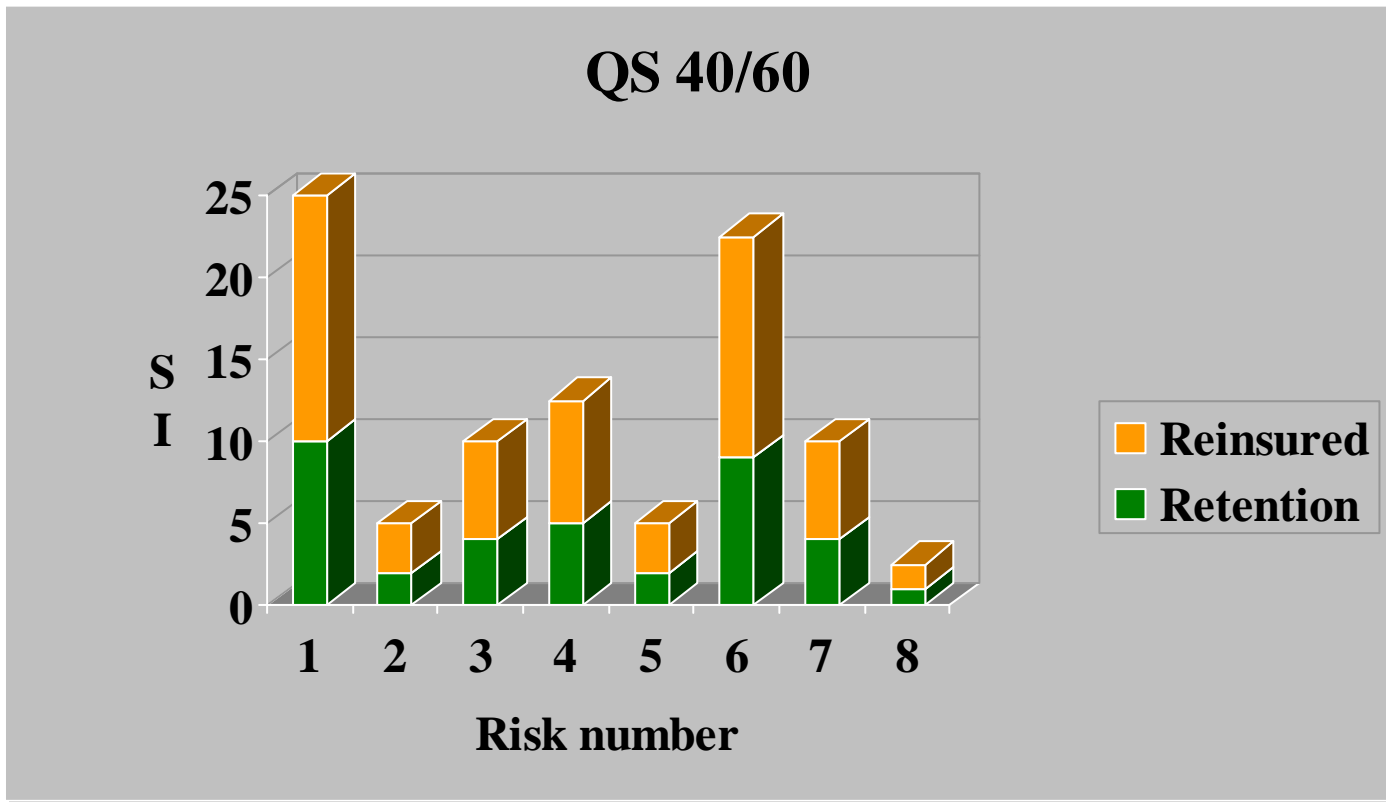
- ☑ Surplus

⌘ Non-proportional reinsurance

- ☑ Excess of loss

- ☑ Stop loss

Quota-share



Quota-share

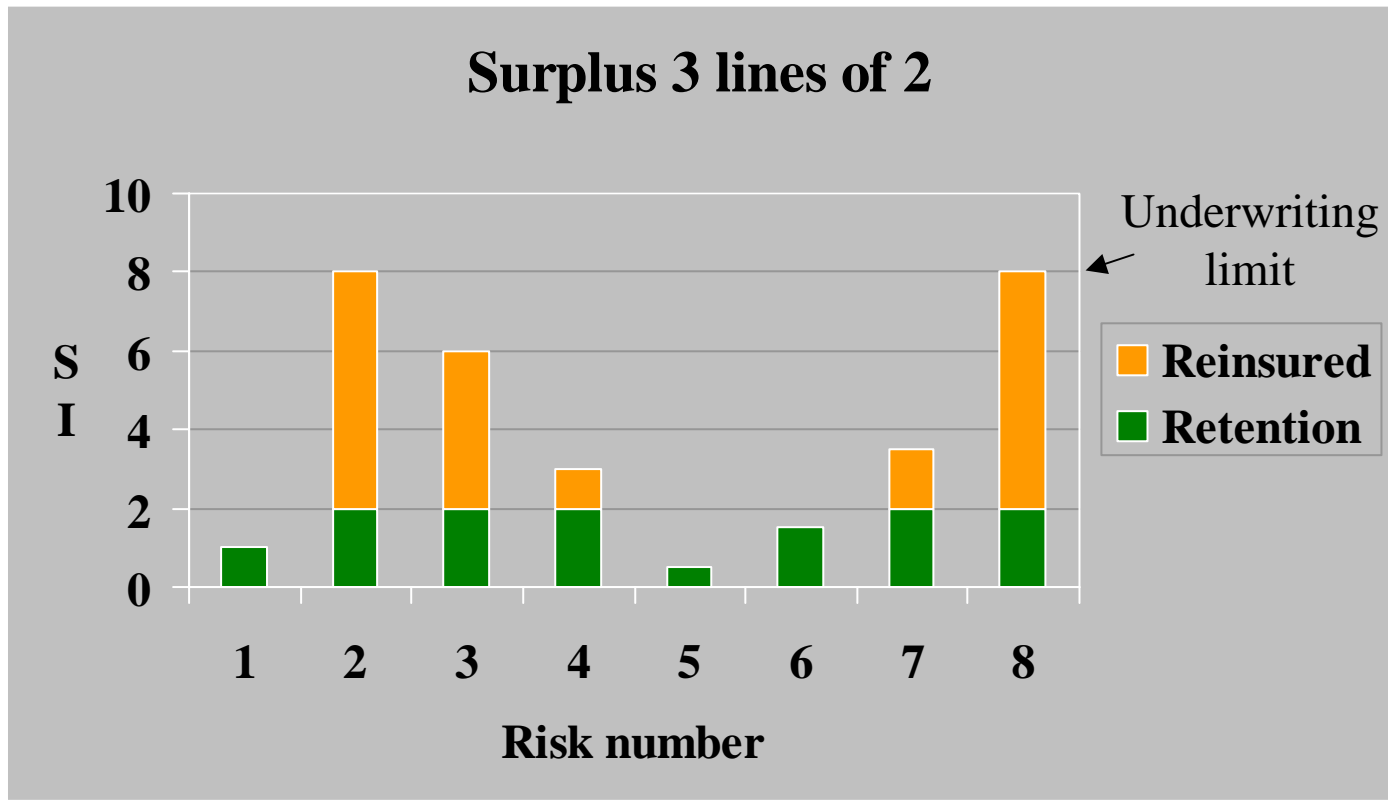
⌘ Advantages :

- ☑ Simple administration
- ☑ Support for new product, new company, other treaties
- ☑ Decrease of the total exposure
- ☑ Decrease of the required solvency margin

⌘ Disadvantages :

- ☑ High level of premiums ceded
- ☑ Inadequate against large claims

Surplus



Surplus

⌘ **Example : line = 10**

⌘ **R1 : Sum insured = 20**

=> Ceded part = 50%

⌘ **R2 : Sum insured = 100**

=> Ceded part = 90%

Surplus

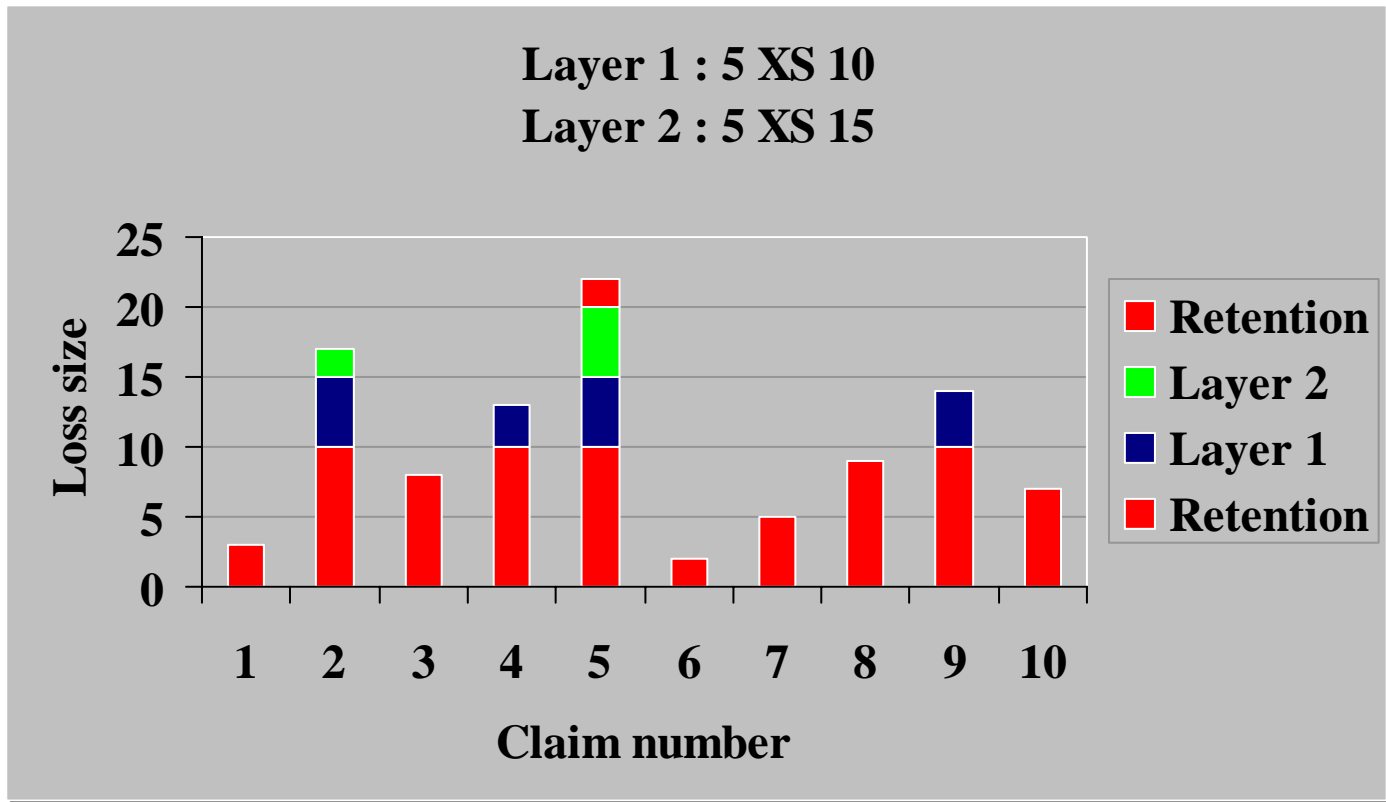
⌘ Advantages :

- ☑ Increase of the U/W limit
- ☑ Limitation of the maximal exposure
- ☑ Makes the portfolio more homogeneous

⌘ Disadvantages :

- ☑ Heavy administration
- ☑ Still a large proportion of premium ceded
- ☑ Inadequate against accumulation of small claims

Excess-of-loss



Excess-of-loss

⌘ Per risk

⌘ Per event : all claims caused by the same event are grouped in one loss

Excess-of-loss per risk

⌘ Advantages

- ☑ Limitation of the maximal exposure
- ☑ Simple administration
- ☑ Small premium

⌘ Disadvantages

- ☑ Fixing the reinsurance premium
- ☑ Inadequate against accumulation of small claims
- ☑ Conditions can change faster

Excess-of-loss per event

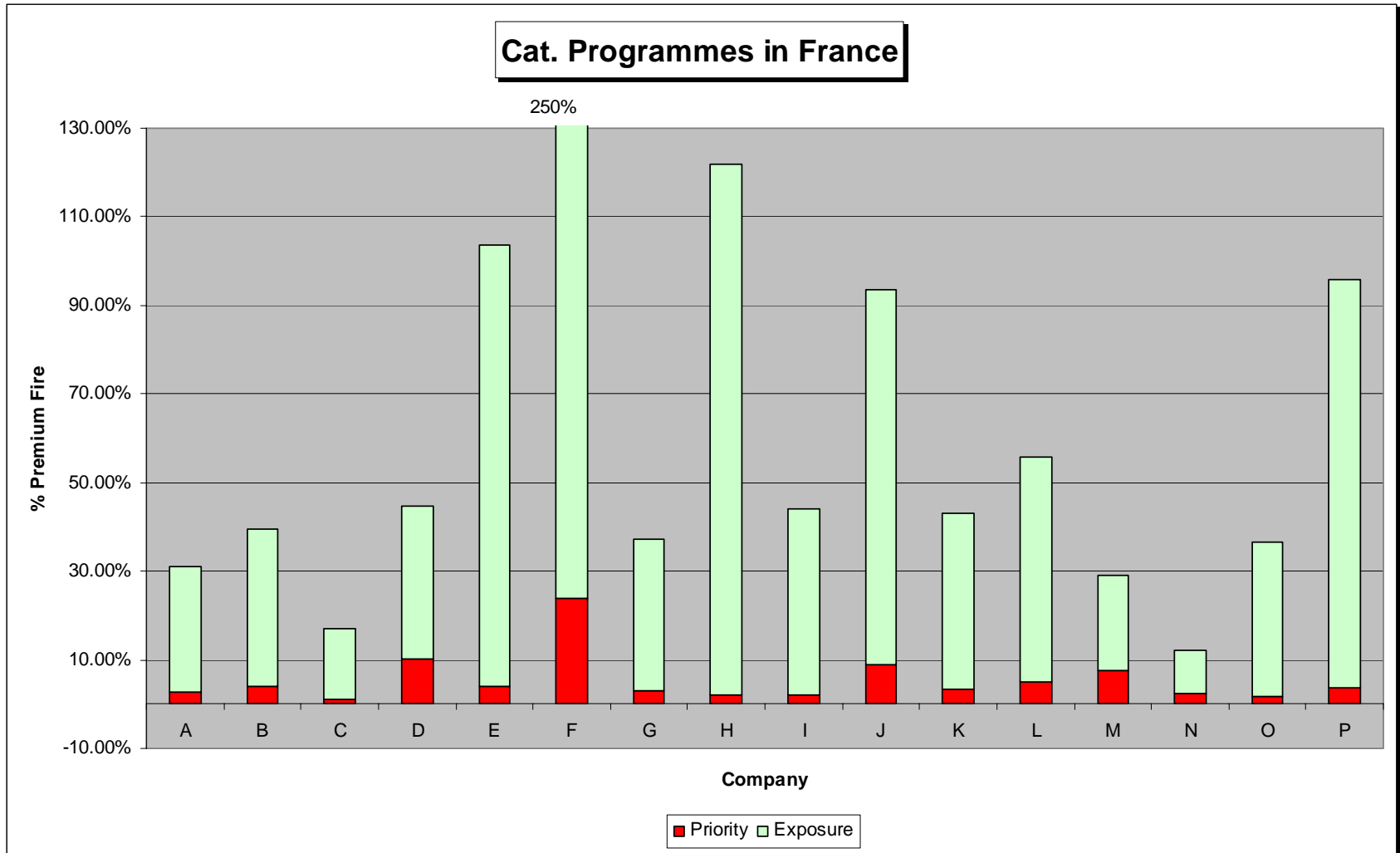
⌘ Advantages

- ☑ Limitation of the maximal exposure in case of event
- ☑ Simple administration & small premium

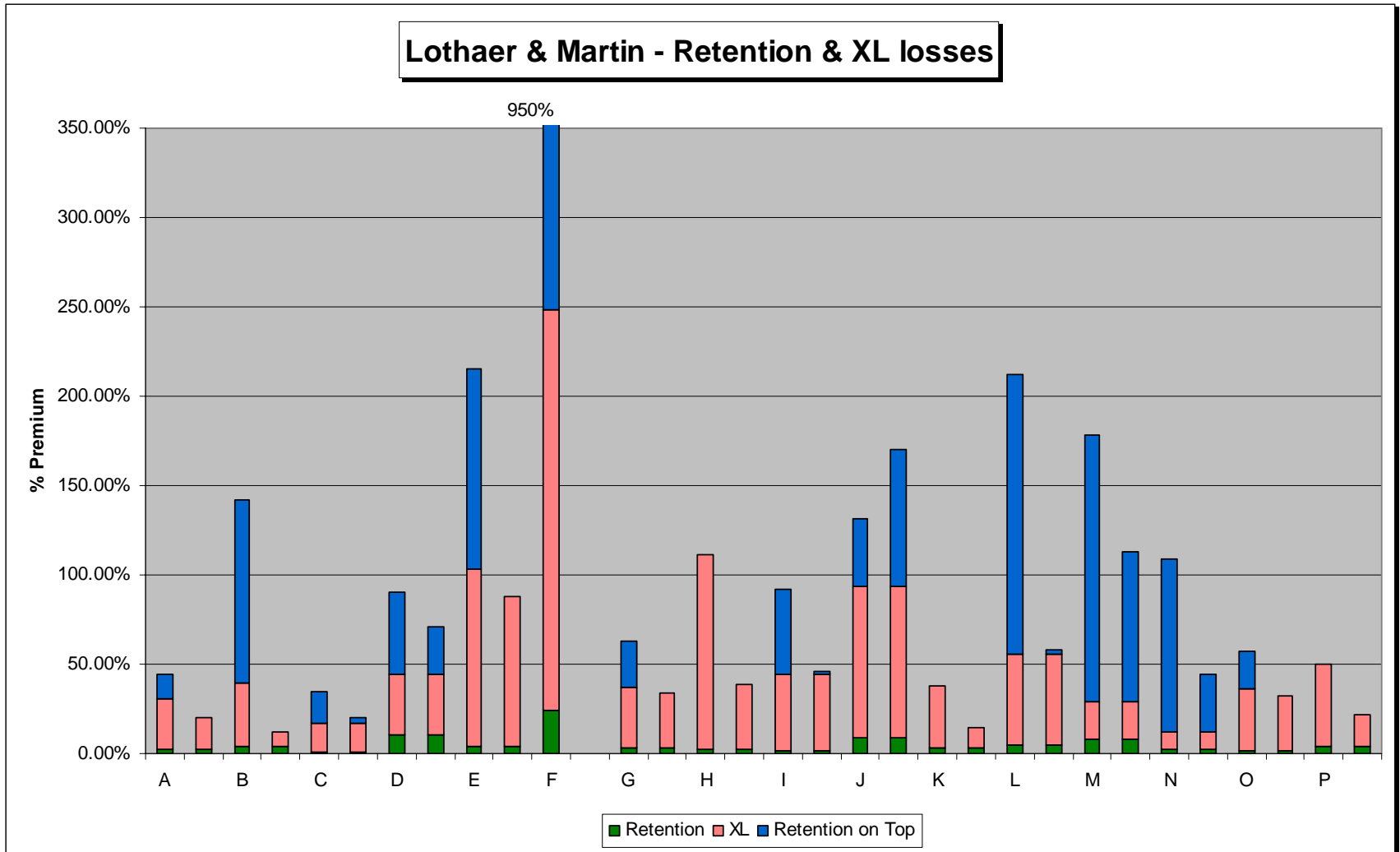
⌘ Disadvantages

- ☑ Fixing the reinsurance premium
- ☑ Conditions can change faster

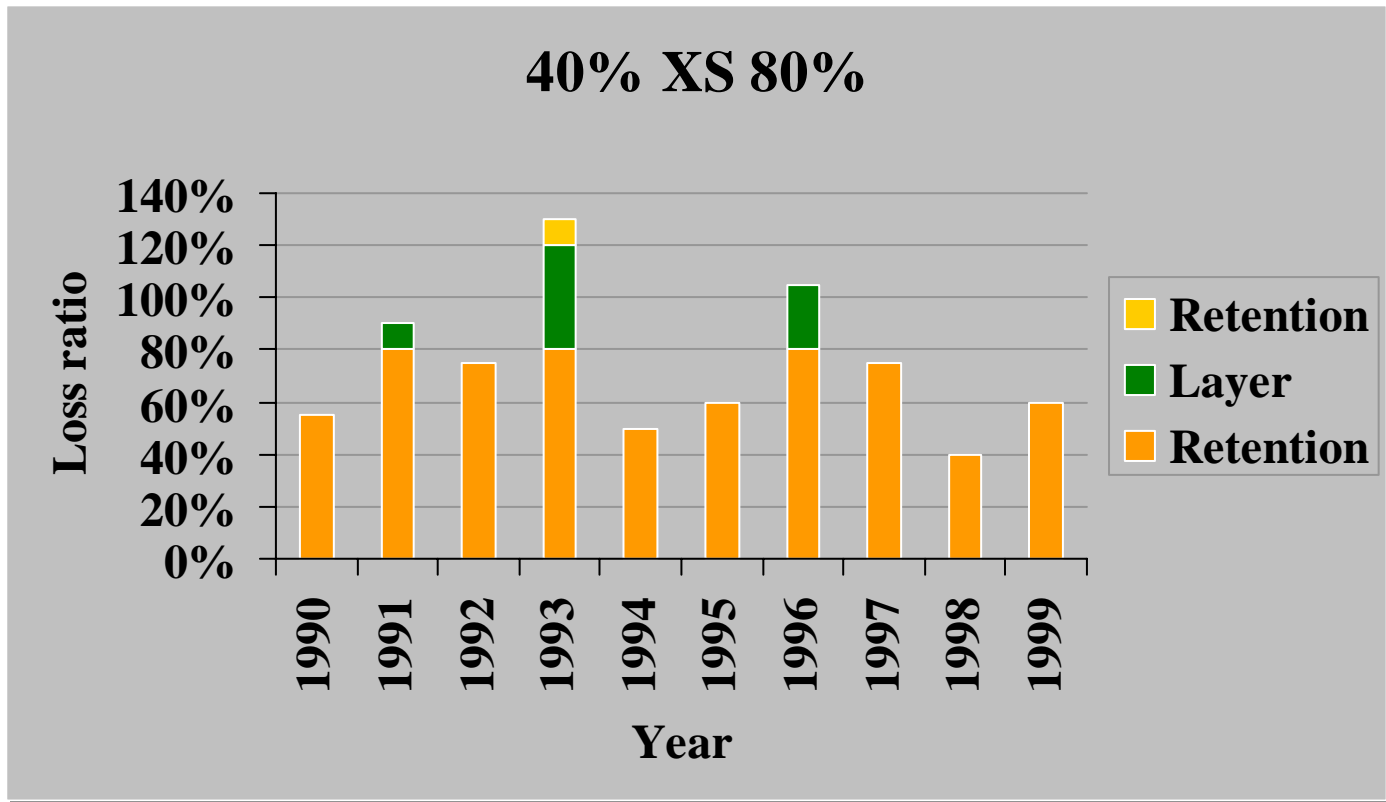
Cat programs in France



Cat programs in France after 99 storms



Stop-loss



Stop-loss

⌘ Advantages :

- ☑ Ideal coverage
- ☑ Simple administration

⌘ Disadvantages

- ☑ Fixing the reinsurance premium
- ☑ Often difficult to buy

Evolutions

⌘ New ideas :

- ☒ Insurance & financial risk
- ☒ Balance sheet protection
- ☒ Volatility of the reinsurance tariff rates
- ☒ Capacity outside the reinsurance market
- ☒ ...

Evolutions

⌘ New products - Alternative Risk Transfer :

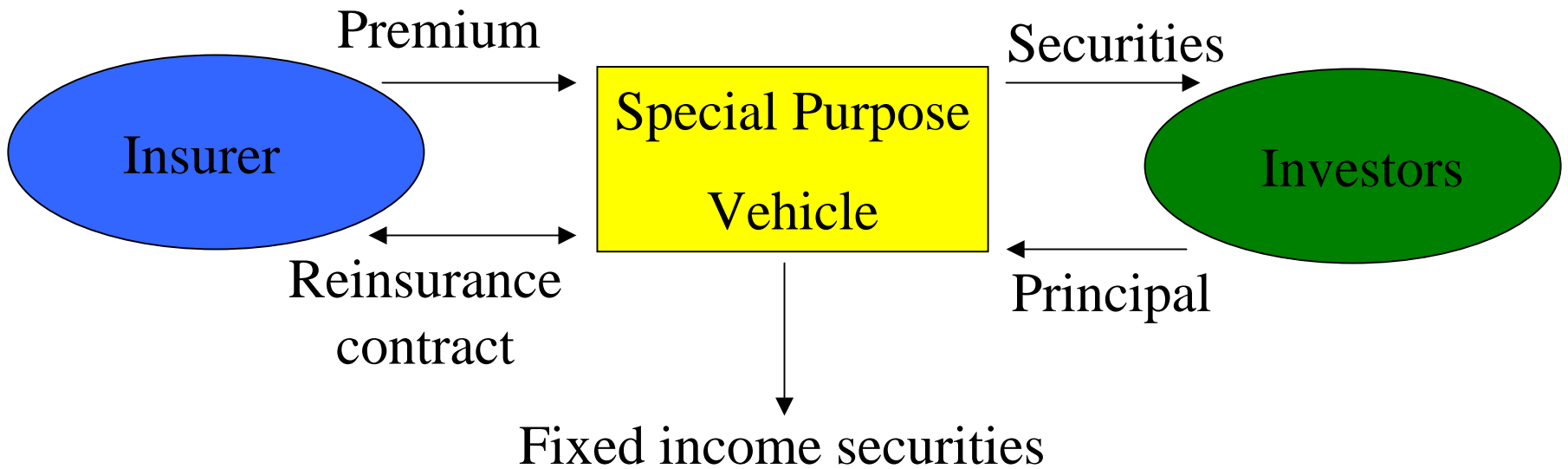
- ☒ Risk transfer
- ☒ Risk financing
- ☒ Multi-trigger
- ☒ Multi-line
- ☒ Multi-year
- ☒ Securitisation of insurance risks
- ☒ ...

Example 1

Securitisation of (re)insurance risks

- ⌘ Issuance of bonds up front to third party investors**
- ⌘ Means for (re)insurers to access capital**

Example 1 : cat bond



Example 2 in “tak/branche 23”

⌘ Coverage of the possible difference between the market value and the guaranteed minimum in case of death

☒ Multi-trigger : death & decrease of the value of the investment fund

☒ Combination insurance risk & financial risk

Example 3 : multi-risk cover

⌘ Traditional stop-loss

☒ 30% XS 90% based on loss ratio (LR)

⌘ But loss ratio corrected in function of the variation of an index over the period

☒ $LR' = LR - \delta (\text{index } 31.12 - \text{index } 1.1)$

Conclusion

- ⌘ **The reinsurance world is changing faster and faster**
- ⌘ **Convergence with the financial world**