

# **Reinsurance : introduction, techniques & evolutions**

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# History

⌘ **14th century - speculation marine risks**

⌘ **19th century - larger capacities due to industrial evolution**

☒ **Treaties**

⌘ **1st professional reinsurer**

☒ **1863 : Kölnische Rück**

⌘ **Munchener Rück : 1880**

⌘ **Secura : 29.12.1945**

# Do you want to know more about reinsurance ?

## ⌘ Reinsurance

☒ Carter, Lucas & Ralph

☒ Reactions Publishing & Group & Guy  
Carpenter

☒ 4th edition - 2000

# Windstorms in France

⌘ **Lothaer : 26.12.1999**

**Martin : 27-28.12.1999**

⌘ **Insured (total) loss :**

☒ **Lothaer : USD 4.5 Bln (9.0)**

☒ **Martin : USD 2.2 Bln (4.5)**

# **An introductory example**

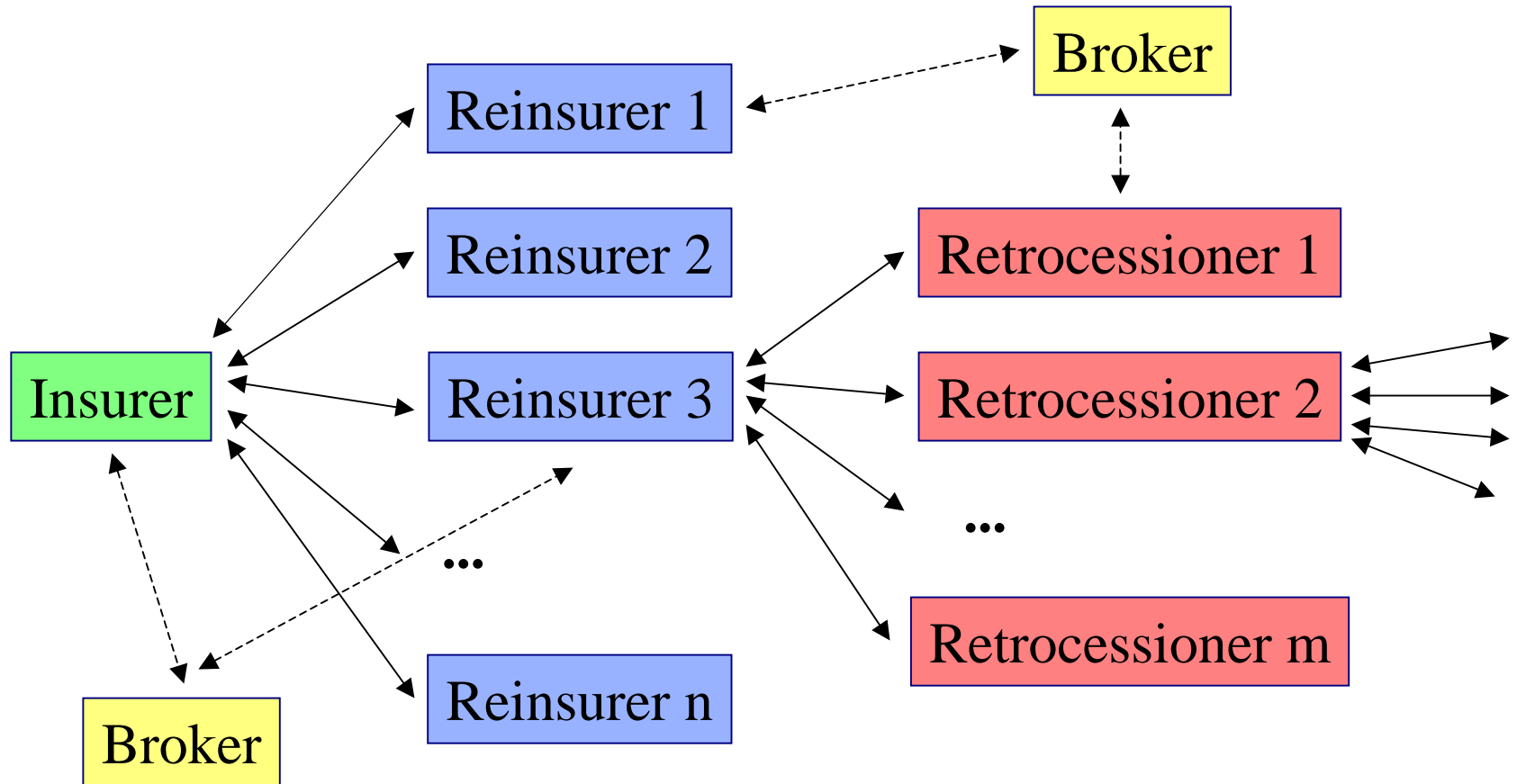
**⌘ Capital or reinsurance ?**

**⌘ Example : see appendix**

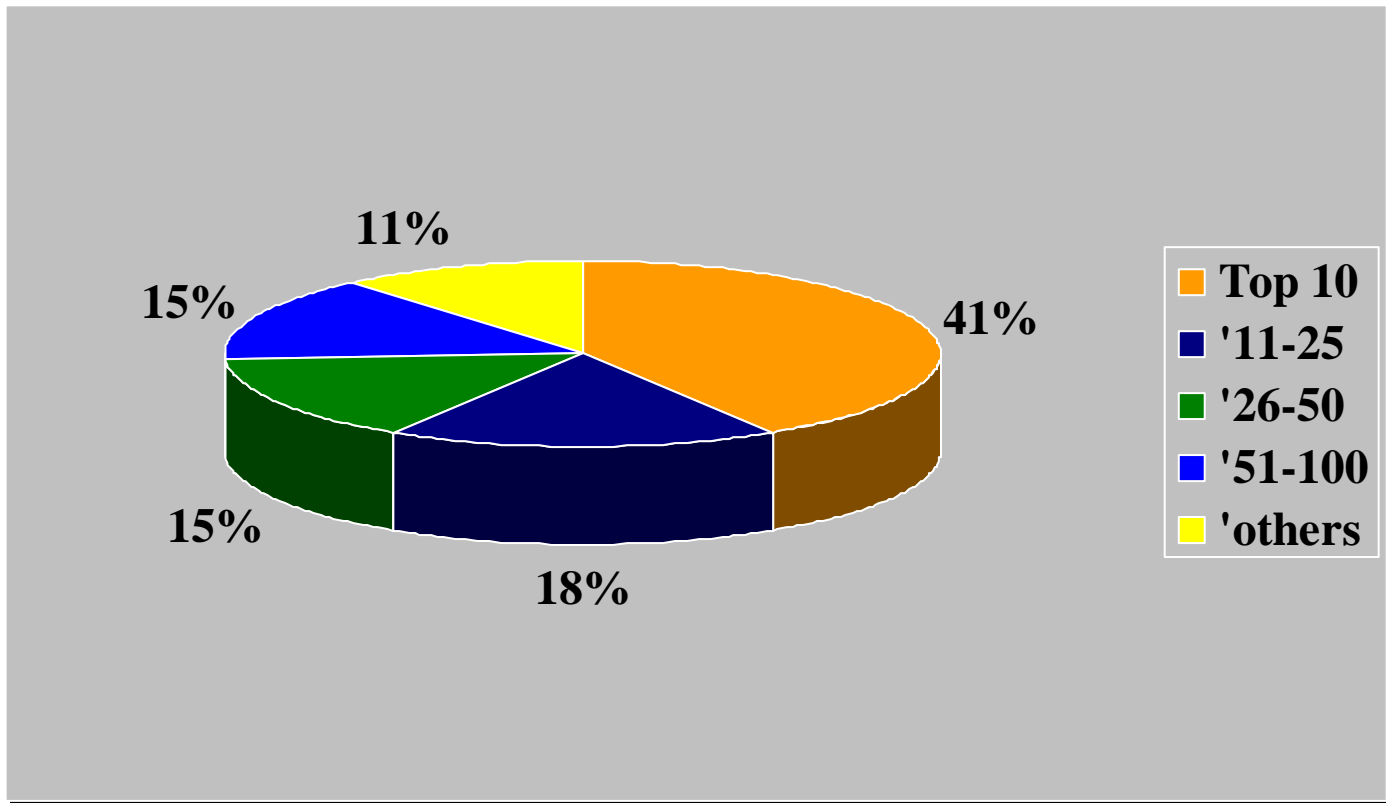
# **Main objectives of reinsurance**

- ⌘ Financial protection**
- ⌘ Stability of the result**
- ⌘ Reducing the minimum solvency margin**
- ⌘ Technical support**
- ⌘ Financing**
- ⌘ Spreading of risks**

# Organisation



# The reinsurance market



Year 1998

# The reinsurance market

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

(1) General & Cologne Re

Year 1998

# Techniques

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

# Techniques

## ⌘ Proportional reinsurance

- ☑ Quota-share

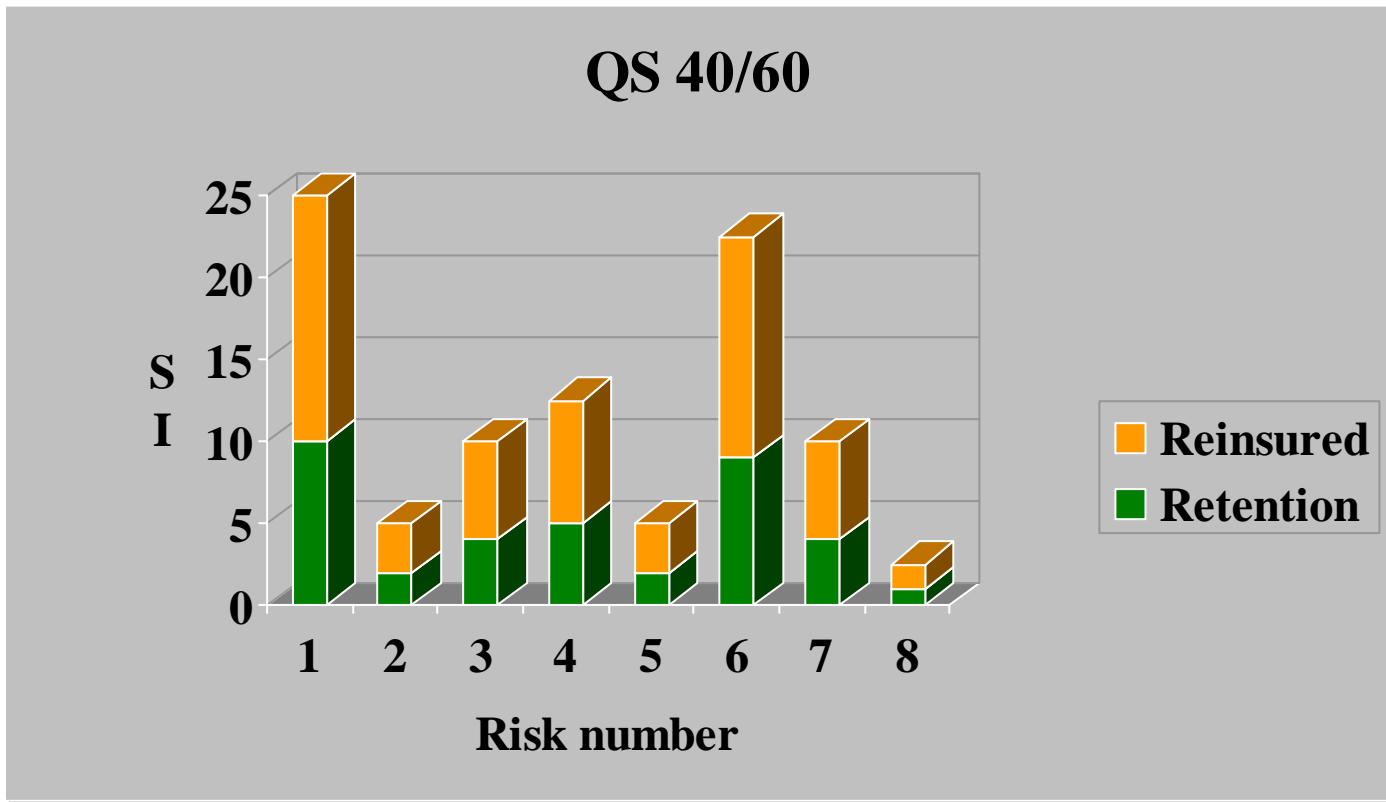
- ☑ Surplus

## ⌘ Non-proportional reinsurance

- ☑ Excess of loss

- ☑ Stop loss

# Quota-share



# Quota-share

## ⌘ Advantages :

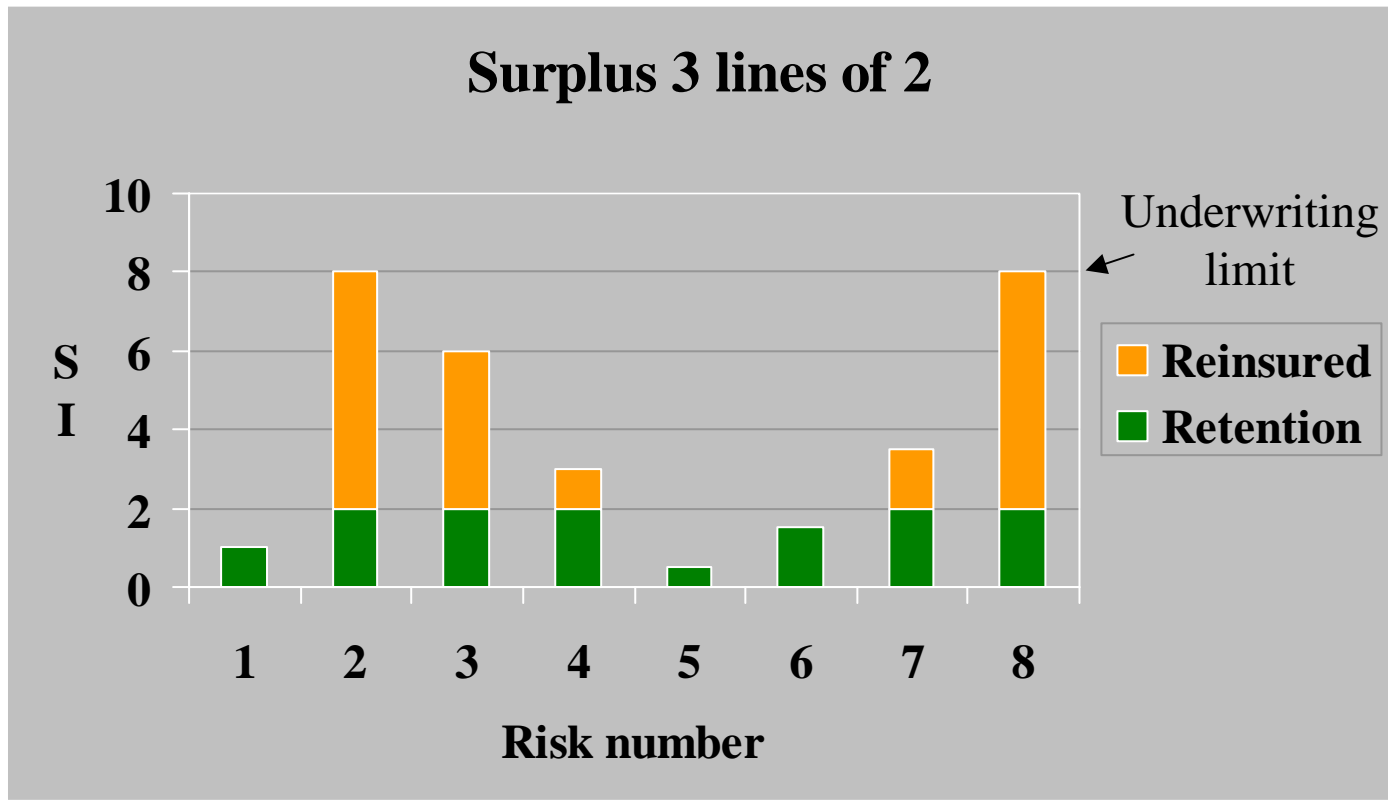
- ☑ Simple administration
- ☑ Support for new product, new company, other treaties
- ☑ Decrease of the total exposure
- ☑ Decrease of the required solvency margin

# Quota-share

## ⌘ Disadvantages :

- ☒ High level of premiums ceded
- ☒ U/W capacity remains limited
- ☒ Inadequate against large claims
- ☒ Inadequate against accumulation of small claims

# Surplus



# Surplus

## ⌘ Advantages :

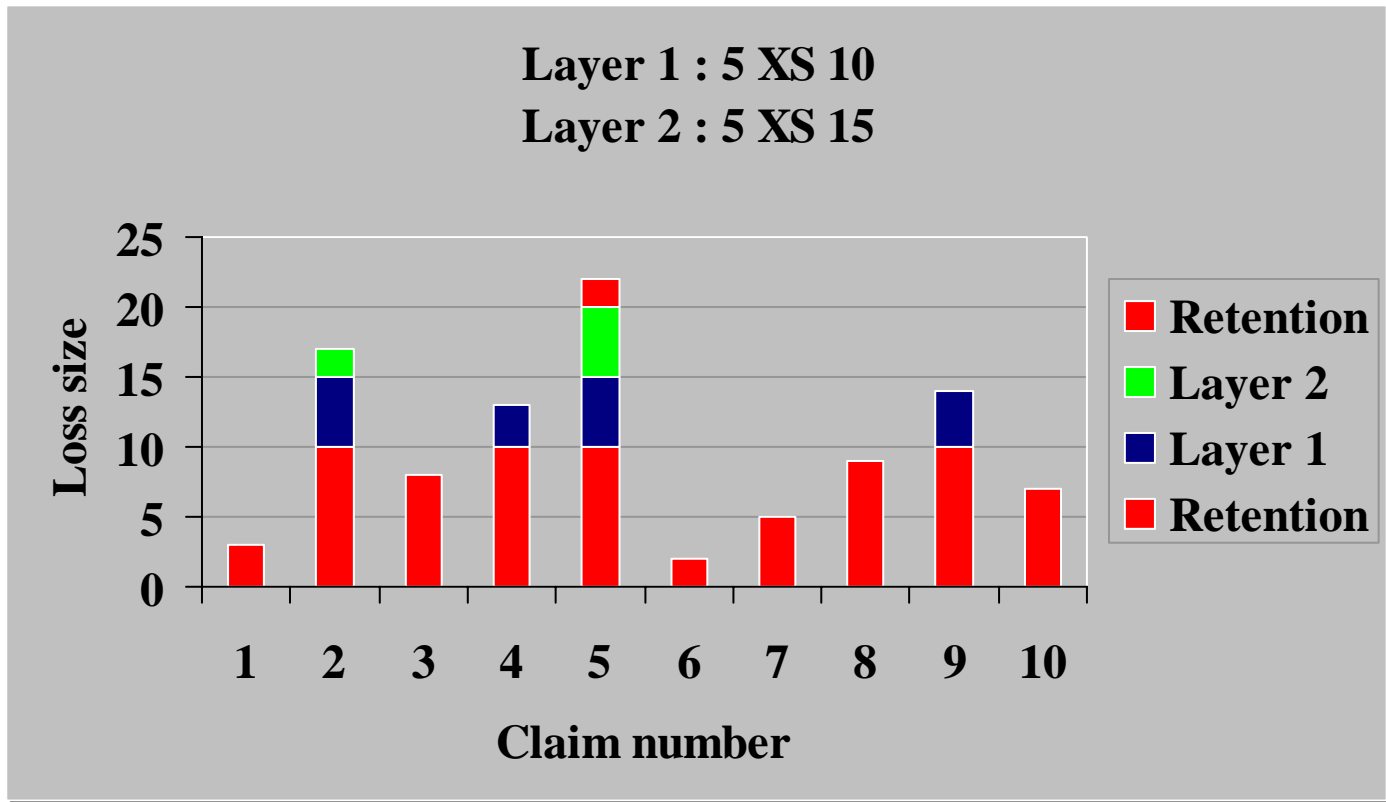
- ☑ Increase of the U/W limit
- ☑ Limitation of the maximal exposure
- ☑ Makes the portfolio more homogeneous

# Surplus

## ⌘ Disadvantages :

- ☒ Heavy administration
- ☒ Still a large proportion of premium ceded
- ☒ Inadequate against accumulation of small claims
- ☒ Risk of antiselection for the reinsurer
- ☒ Small losses hitting large risks are also reinsured

# 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

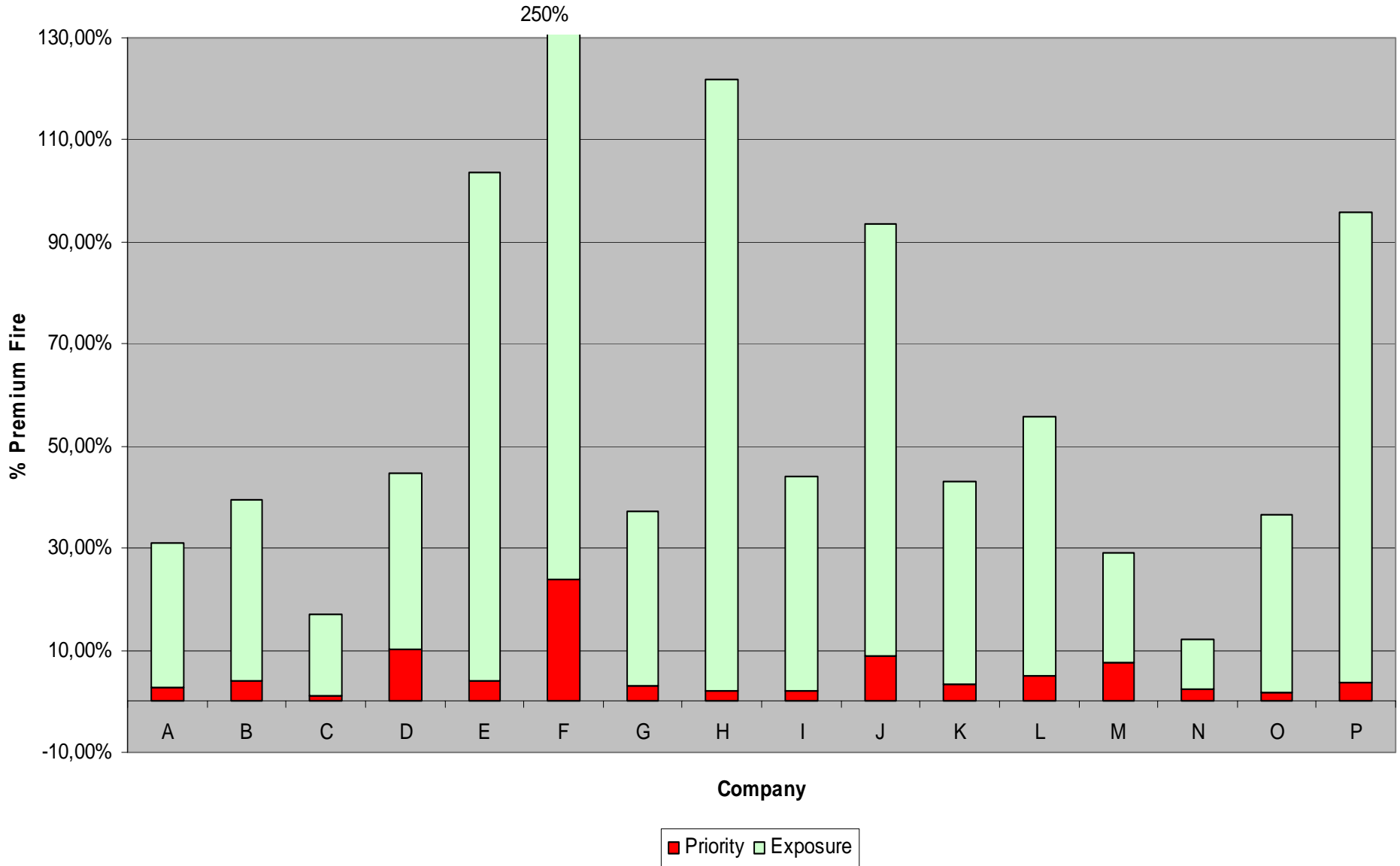
## ⌘ Advantages

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

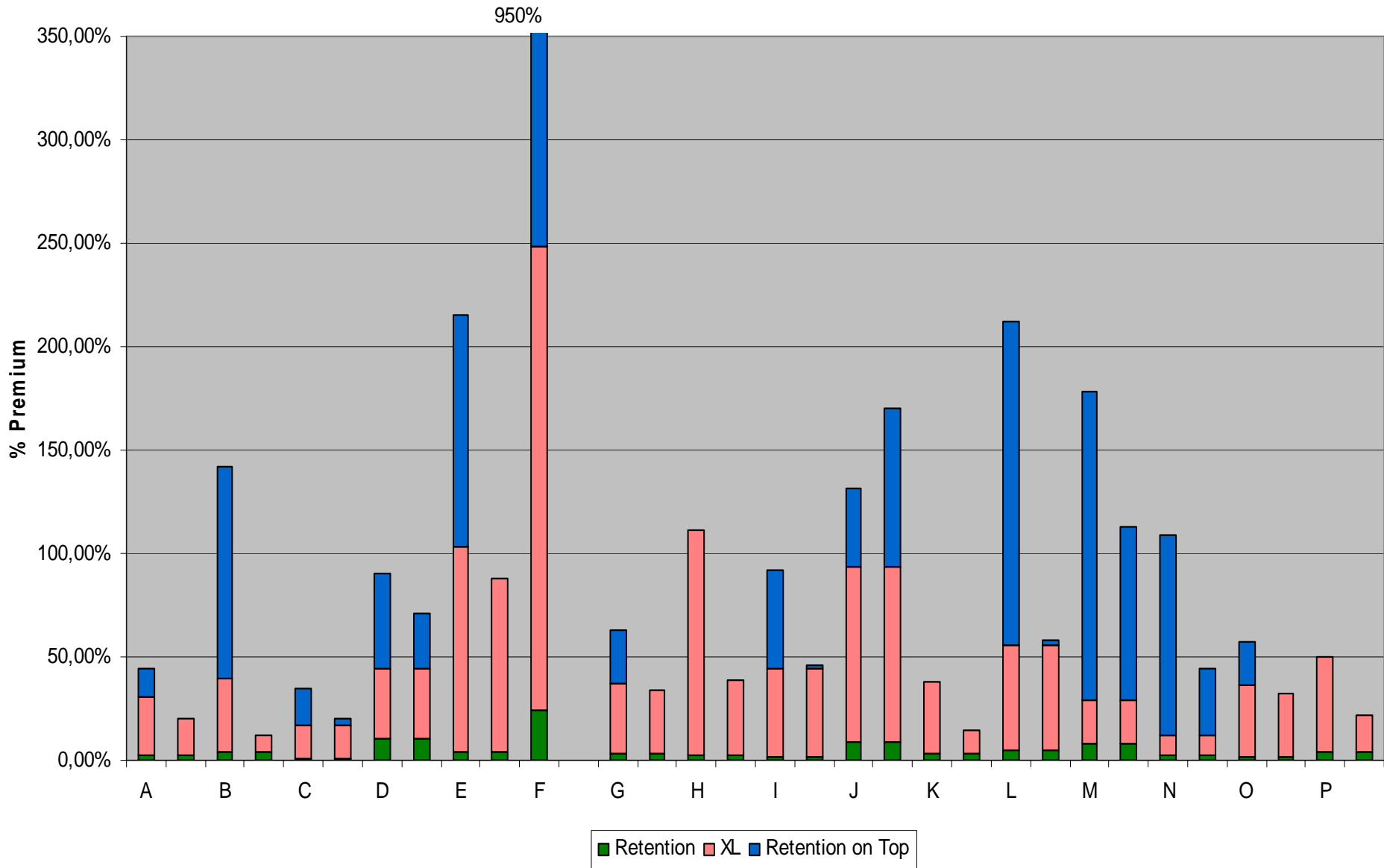
## ⌘ Disadvantages

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

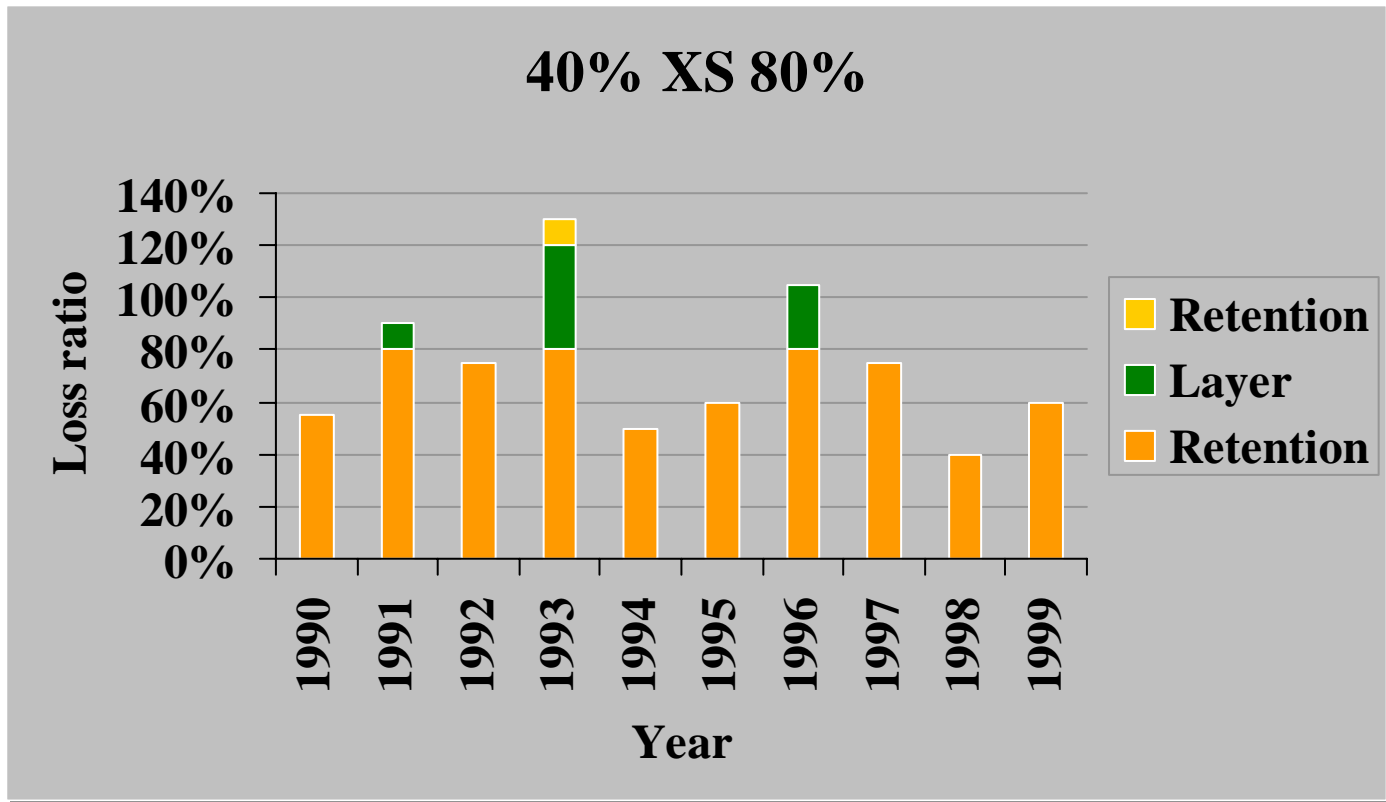
# Cat. Programmes in France



# Lothaer & Martin - Retention & XL losses



# Stop-loss



# Stop-loss

## ⌘ Advantages :

- ☑ Ideal coverage
- ☑ Simple administration

## ⌘ Disadvantages

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

# Evolutions

## ⌘ New ideas :

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

# Evolutions

## ⌘ New products - Alternative Risk Transfer :

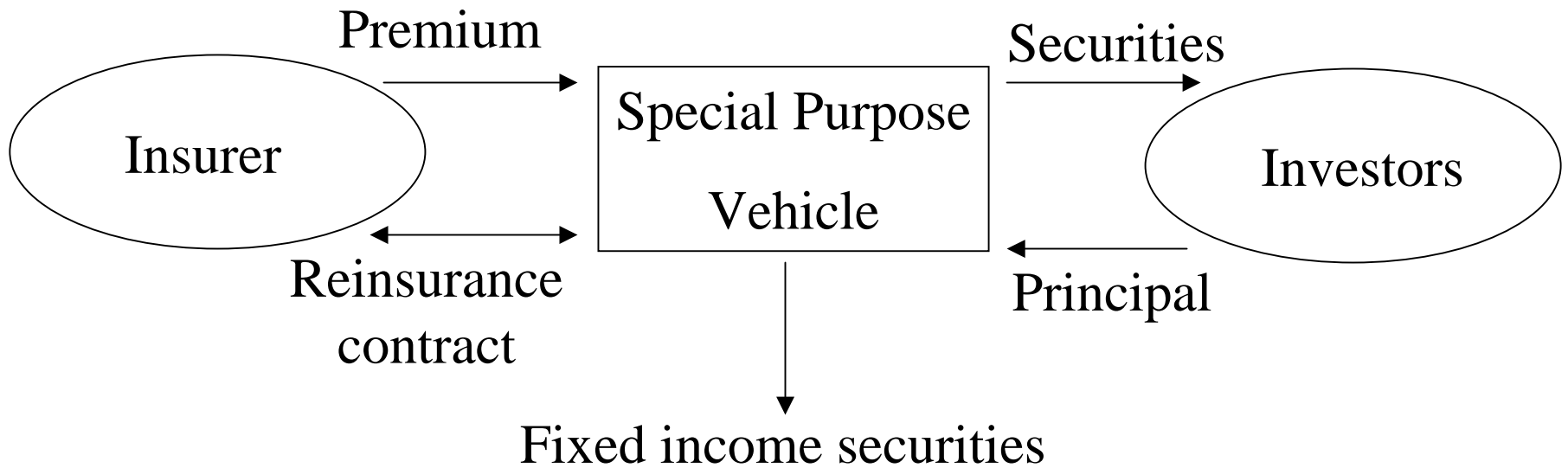
- ☒ Risk transfer
- ☒ Risk financing
- ☒ Multi-trigger
- ☒ Multi-line
- ☒ Multi-year
- ☒ Securitisation of insurance risks
- ☒ ...

# **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



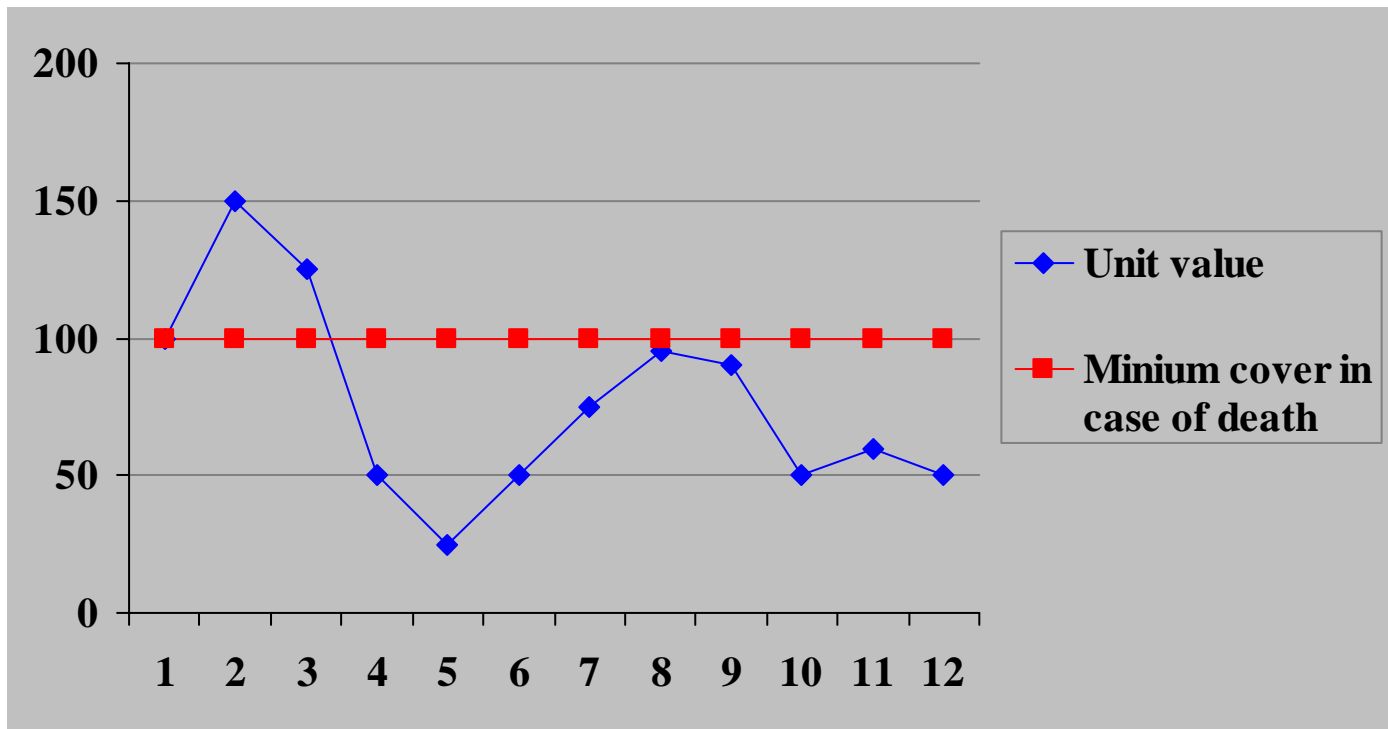
## **Example 2 in unit linked product**

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

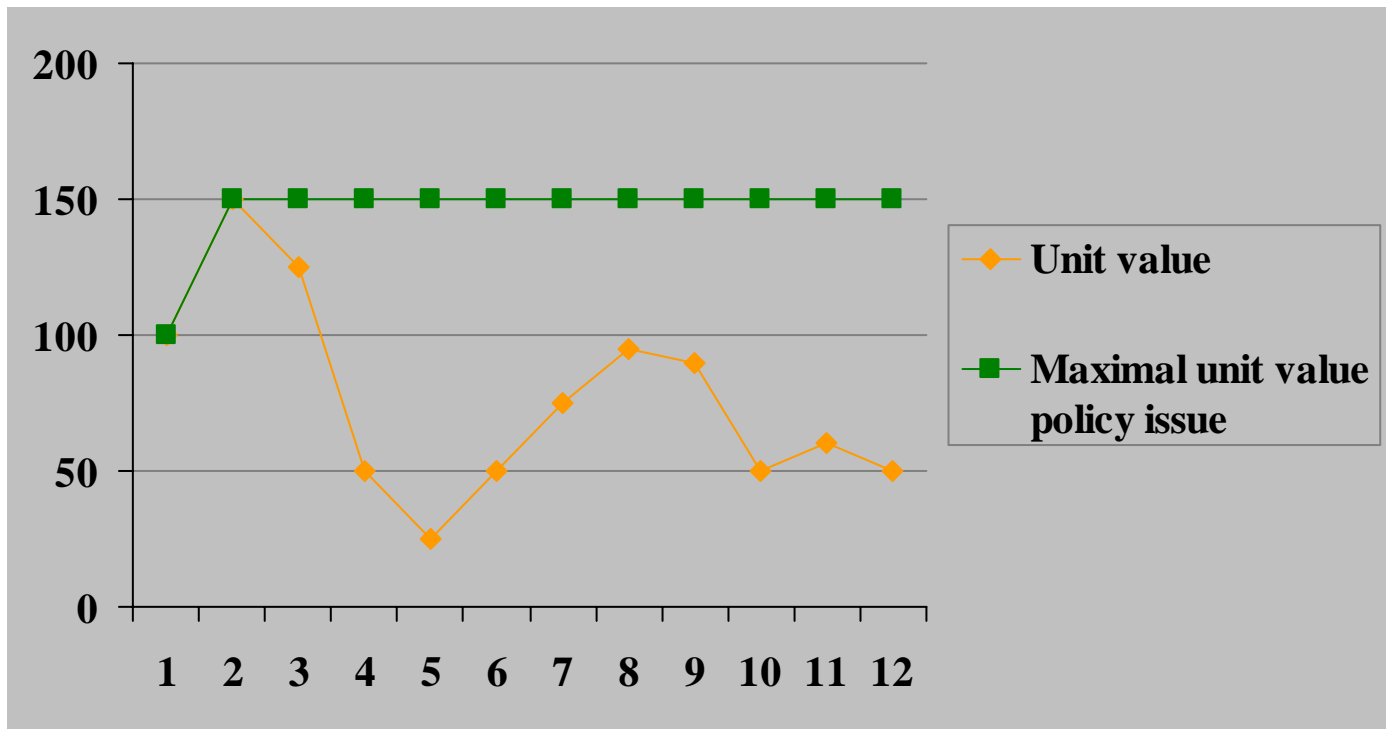
**☒ Multi-trigger : death & decrease of the value of the investment fund**

**☒ Combination insurance risk & financial risk**

# Unit linked product



# Unit linked product



## Example 3 : multi-risk cover

### ⌘ Multi-line 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**