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Conceptos básicos del reaseguro: El caso de Swiss Re

Swiss Re

Agenda

- Basic concepts of reinsurance
  - A definition of reinsurance
  - Why is there a need for reinsurance?
  - Types of reinsurance
  - Examples

- Reinsurance market
  - Introduction to Swiss Re

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Basic concepts of reinsurance

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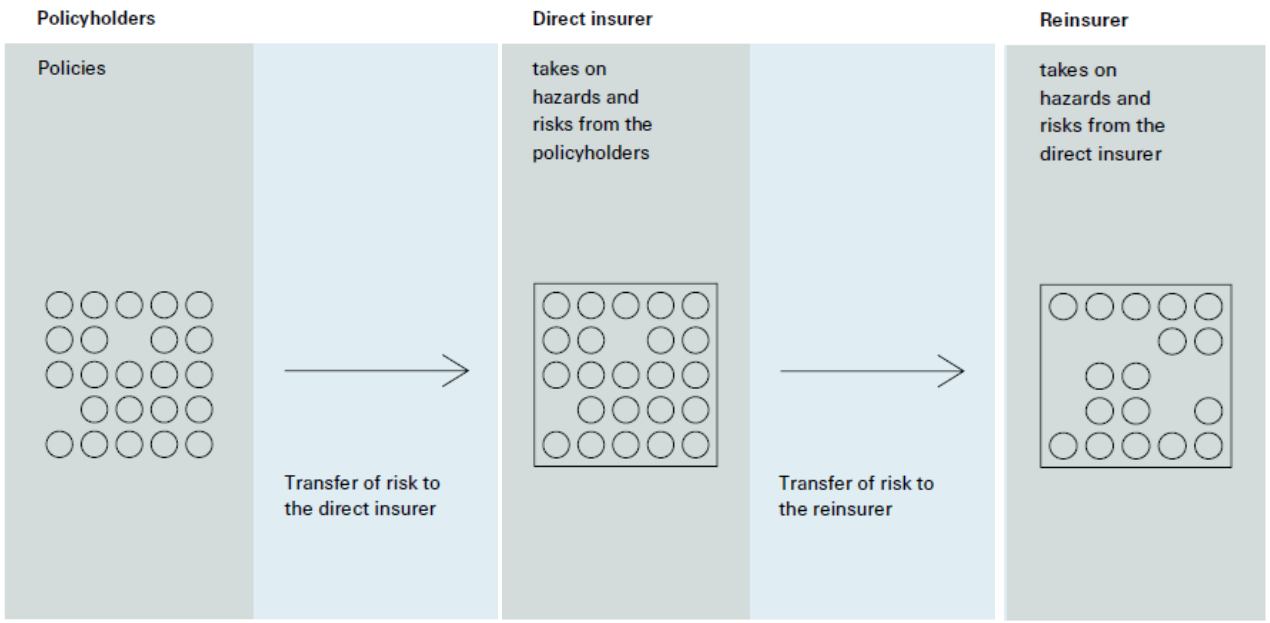
A definition of reinsurance

"Reinsurance is insurance for insurance companies."

More precisely, "Reinsurance is the transfer of part of the **risks** that a **direct insurer** assumes by way of insurance contract on behalf of an insured, to a second insurance carrier, the **reinsurer**, who has no direct contractual relationship with the insured."



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Why is there a need for reinsurance?

- *Risk transfer*

…to allow the ceding insurance company to write and assume individual risks that are greater than its capital size would allow. Reinsurance also protects insurers against catastrophic losses.

- *Substitute for risk capital*

…to lower capital costs. Investors expect an adequate return on their investment.

- *Income smoothing*

..to smooth out the financial results of an insurance company, making them more predictable by absorbing larger losses. This enables easier business planning and financial projections.

- *Provide expertise to cedents*

Types of reinsurance

❑ Facultative versus treaty reinsurance

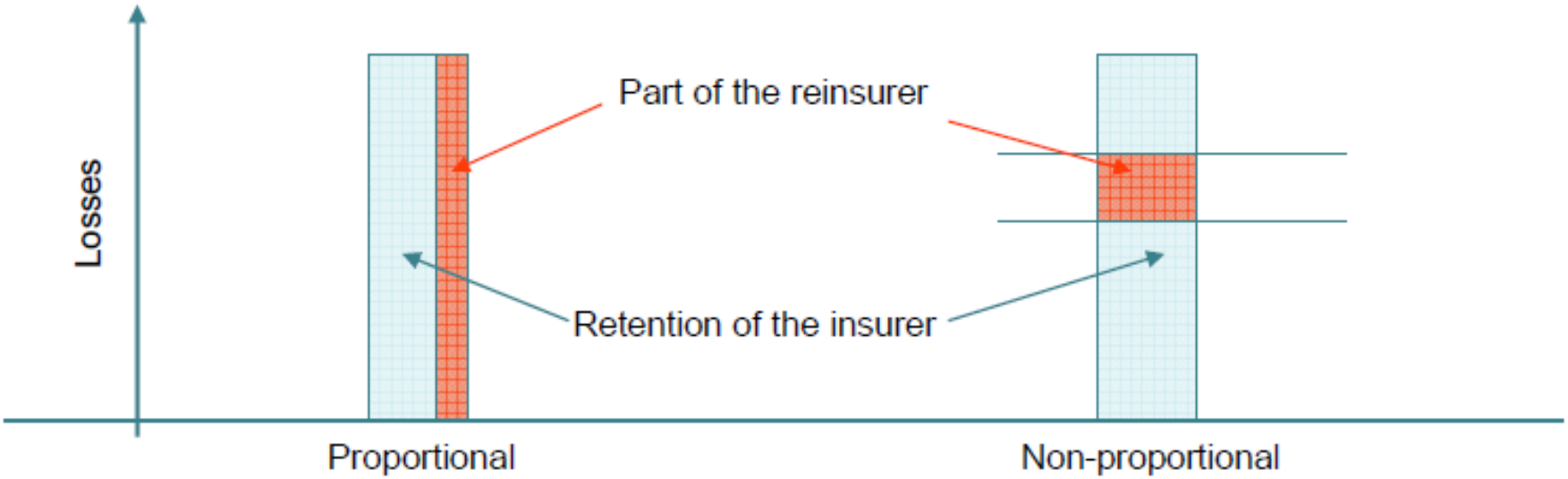
Facultative reinsurance is reinsurance for individual risks. The direct insurer chooses freely which particular, individual risks he wants to offer to a reinsurer.

Treaty reinsurance is reinsurance for entire portfolios: automatic reinsurance.

❑ Proportional versus non proportional reinsurance

With the **proportional insurance** the direct insurer and the reinsurer divide premiums and losses between them at a contractually **defined ratio** (quota shares and surplus).

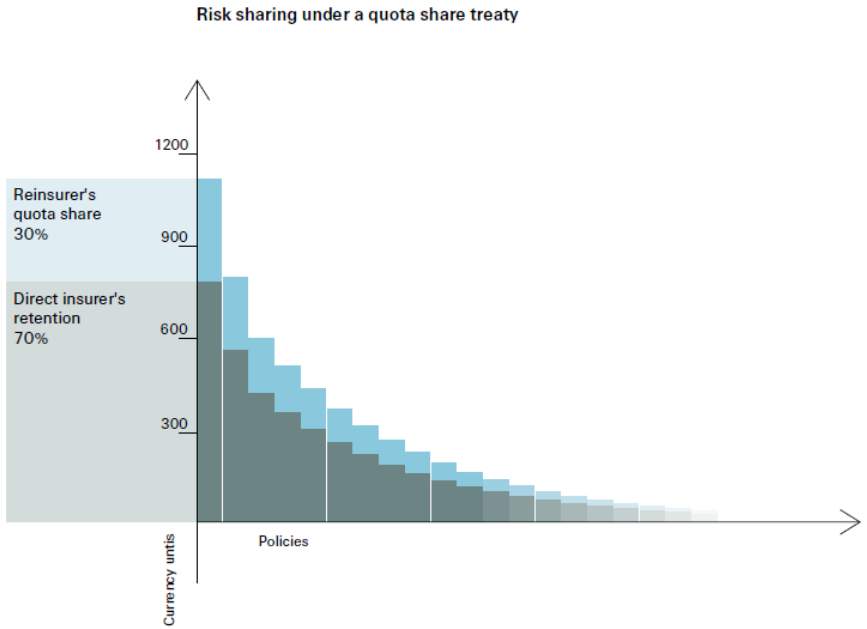
With **non-proportional reinsurance** the reinsurer assumes a **defined tranche** of the risk (excess of loss or stop loss).


Losses
Part of the reinsurer
Retention of the insurer
Proportional
Non-proportional

Examples

1. Porportional treaty - Quota share

Direct insurer's retention	70%
Reinsurance quota share	30%
Sum insured (SI) of the insured object	10 million
Direct insurer retains 70% of the exposure	7 million
Reinsurer assumes 30% of the exposure	3 million
Premium rate is 2‰ of the SI	20 000
Direct insurer retains 70%	14 000
Reinsurer receives 30%	6 000
Loss	6 million
Direct insurer pays 70%	4.2 million
Reinsurer pays 30%	1.8 million



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Examples

2. Non proportional treaty - XL

After application of all proportional reinsurance covers, a direct insurer's retention is 8 million. To further protect his retention from major loss, he then buys a WXL/R cover of 6 million xs (in excess of) 2 million.

Loss event 1:

A fire leaves the direct insurer with a loss of 1 million for his own account .

Net losses	
Direct insurer	**1 million**
WXL/R reinsurer	Zero (The 2 million deductible was not exceeded.)
CatXL reinsurer	Zero (The 4 million deductible was not exceeded.)

Loss event 2:

A major fire leaves the direct insurer with a loss of 7 million for his own account.

Net losses	
Direct insurer	**2 million** (ie the WXL/R deductible)
WXL/R reinsurer	**5 million**
CatXL reinsurer	Zero (The direct insurer's net loss has been reduced to 2 million by the WXL/R cover, and is thus smaller than the CatXL deductible.)

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Reinsurance market

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Reinsurance market

Who are the largest reinsurers?

Top reinsurers based on gross premiums written as of the end of the 2011 fiscal year (U.S. millions):

1	Munich Reinsurance Company	33,719
2	Swiss Reinsurance Company Limited	28,664
3	Hannover Rueckversicherung AG	15,664
4	Berkshire Hathaway Inc.	15,000
5	Lloyd's	13,621
6	SCOR S.E.	9,845
7	Reinsurance Group of America Inc.	7,704
8	China Reinsurance (Group) Corporation	6,179
9	PartnerRe Ltd.	4,621
10	Korean Reinsurance Company	4,551
11	Everest Re Group Ltd.	4,286
12	Transatlantic Holdings, Inc.	4,035
13	MAPFRE RE, Compania de Reaseguros, S.A.	3,407
14	London Reinsurance Group Inc.	3,117
15	Assicurazioni Generali SpA	2,674

Source: www.insurancenetworking.com

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Introduction to Swiss Re

Swiss Re is a leading and highly diversified global re/insurance company

- **150 years of experience** in providing wholesale re/insurance and risk management solutions
- **We deliver both traditional and innovative offerings** in Property & Casualty and Life & Health that meet our clients' needs
- **A pioneer in insurance-based capital market solutions**, we combine financial strength and unparalleled expertise for the benefit of our clients
- **Our financial strength** is currently rated:
  Standard & Poor's: AA-/stable; Moody's A1/positive; A.M. Best: A+/stable

Source: Swiss Re, Investors presentations

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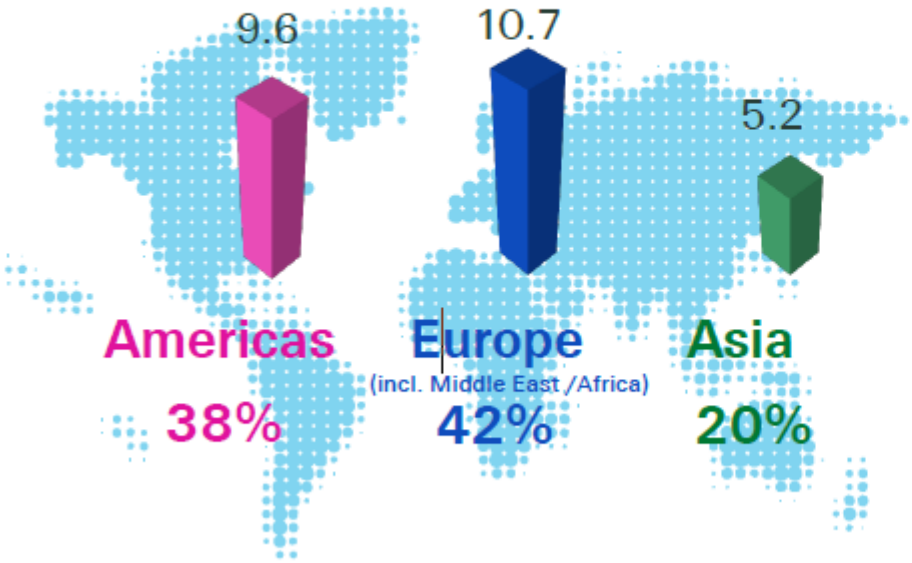
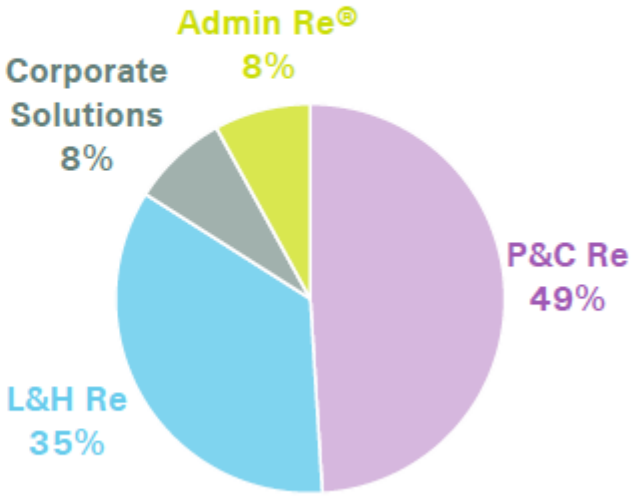
Swiss Re is broadly diversified by geography and product line…

Net premiums earned 2012 (USD 25.5 bn)

by region (in USD bn)



… and by business segment:



- Swiss Re benefits from geographic and business mix diversification and has the ability to reallocate capital to achieve profitable growth

Source: Swiss Re, Investors presentations

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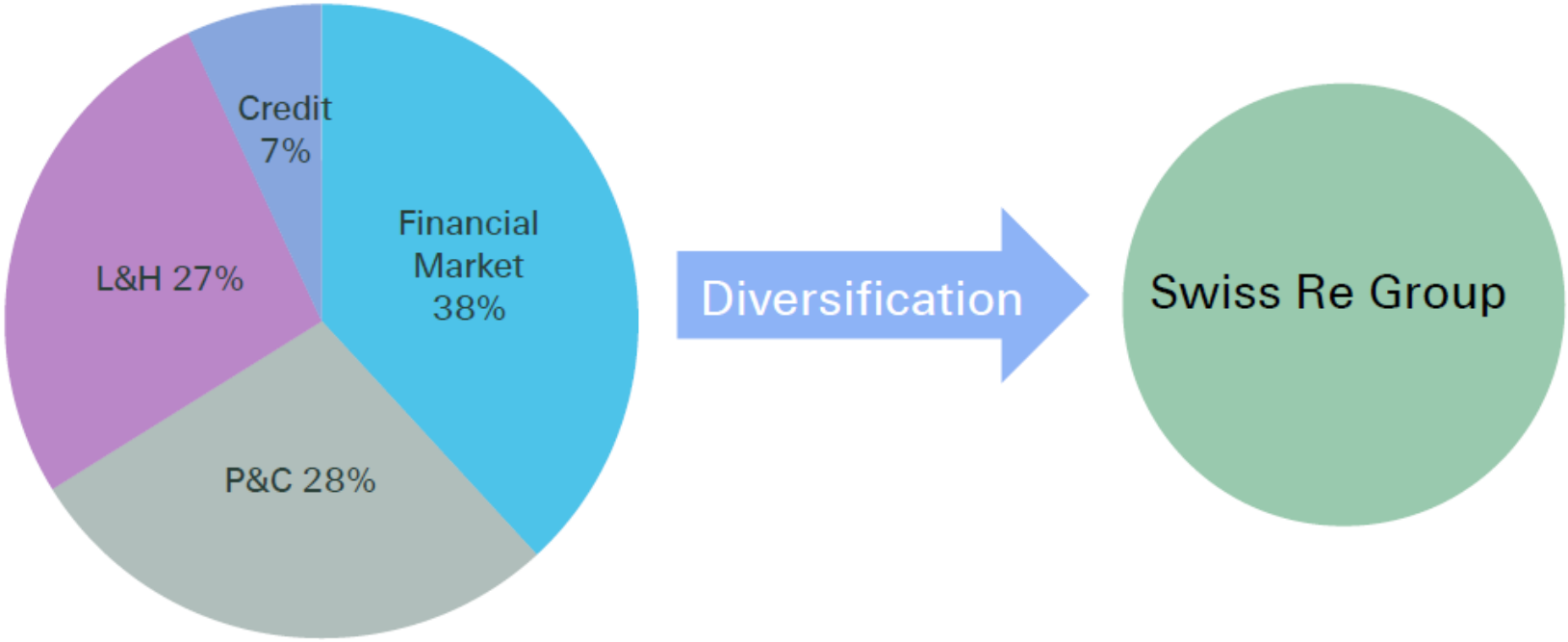
..leading to significant capital benefits

Standalone shortfall based on 1-year 99% Tail VaR of **USD 27.5 billion**[1]...

... results in a Group capital requirement after allowing for diversification of **USD 16.6 billion**.



[1] Simple sum, as of 31 Dec 2012, prior to diversification; both pre- and post-diversification capital requirements are for internal model and disclosed in 2012 annual report

Source: Swiss Re, Investors presentations

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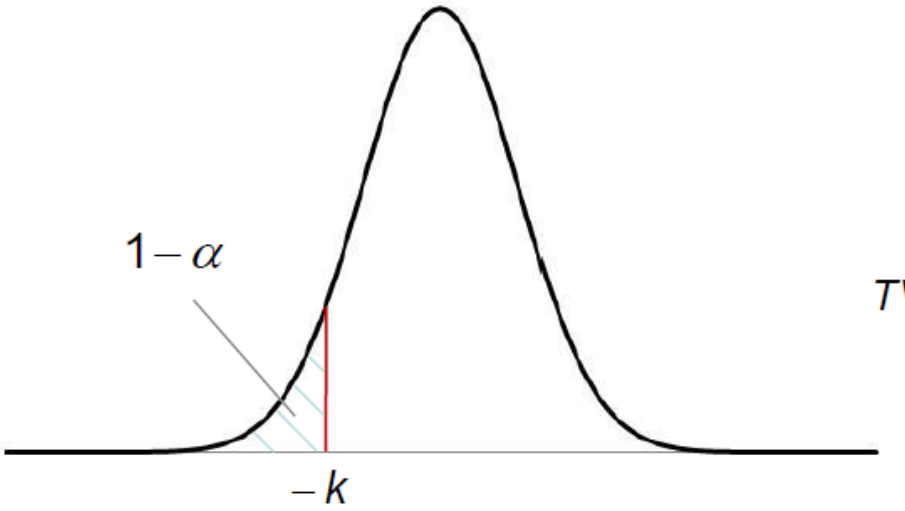
Mathematical definitions: VaR and Tail VaR

Probability distribution, density p(x), of outcomes (suitably centred)



$$VaR(\alpha) = k \quad where \quad \int_{-\infty}^{-k} p(x)dx = 1-\alpha$$

$$TVaR(\alpha) = -\int_{-\infty}^{-k} xp(x)dx \quad where \quad k = VaR(\alpha)$$

More precisely…

Given a confidence level $\alpha \in (0,1)$, the VaR of the portfolio at the confidence level α is given by the smallest number l such that the probability that the loss L exceeds l is at most $(1-\alpha)$. Mathematically, if L is the loss of a portfolio, then $\mathrm{VaR}_\alpha(L)$ is the level α-quantile, i.e.

$$\mathrm{VaR}_\alpha(L) = \inf\{l \in \mathbb{R} : P(L > l) \leq 1-\alpha\} = \inf\{l \in \mathbb{R} : F_L(l) \geq \alpha\}.$$

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Thank you

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