

Actuarial Seminar MFF UK

REINSURANCE OF INSURANCE RISK

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Prague, 21.4.2023

We've got your **back**

VIG Re
VIENNA INSURANCE GROUP



Reinsurance of Insurance Risk

VIENNA INSURANCE GROUP

VIG Re
VIENNA INSURANCE GROUP

VIG - the Leading Insurance Group in CEE

around
50
insurance
companies

represented in
30
countries

more than
28 mn
customers

Premium written
€ 12.6 bn

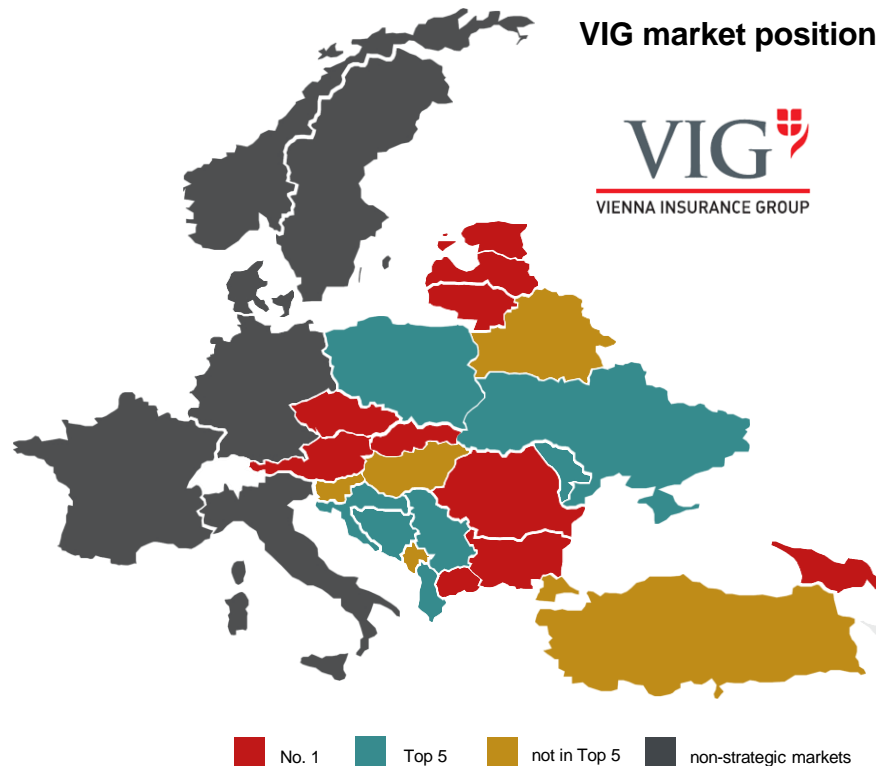
Profit before taxes
€ 562 mn

Combined Ratio
94.9%

A+

Standard & Poor's Rating
with stable outlook

VIG market position⁽²⁾



(1) Preliminary data as of 31.12.2022

(2) Status as of 31.12.2022

Reinsurance of Insurance Risk

VIG Re AT A GLANCE

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VIG Re Development Milestones



Our presence

4 office locations	covering 45 countries	servicing 550 customers
€ 792.3 mn gross written premium	€ 30.7 mn profit before taxes	91.9% combined ratio

A+
Standard & Poor's Rating
with stable outlook



⁽¹⁾ Non-Life Treaty only. L&H served by Headquarters (HQ) ⁽²⁾ Business in Russia and Belarus suspended for the time being

Data as of 31.12.2022, nonaudited, preliminary results.
(1) Non-Life Treaty only. L&H served by Headquarters (HQ)
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Reinsurance of Insurance Risk

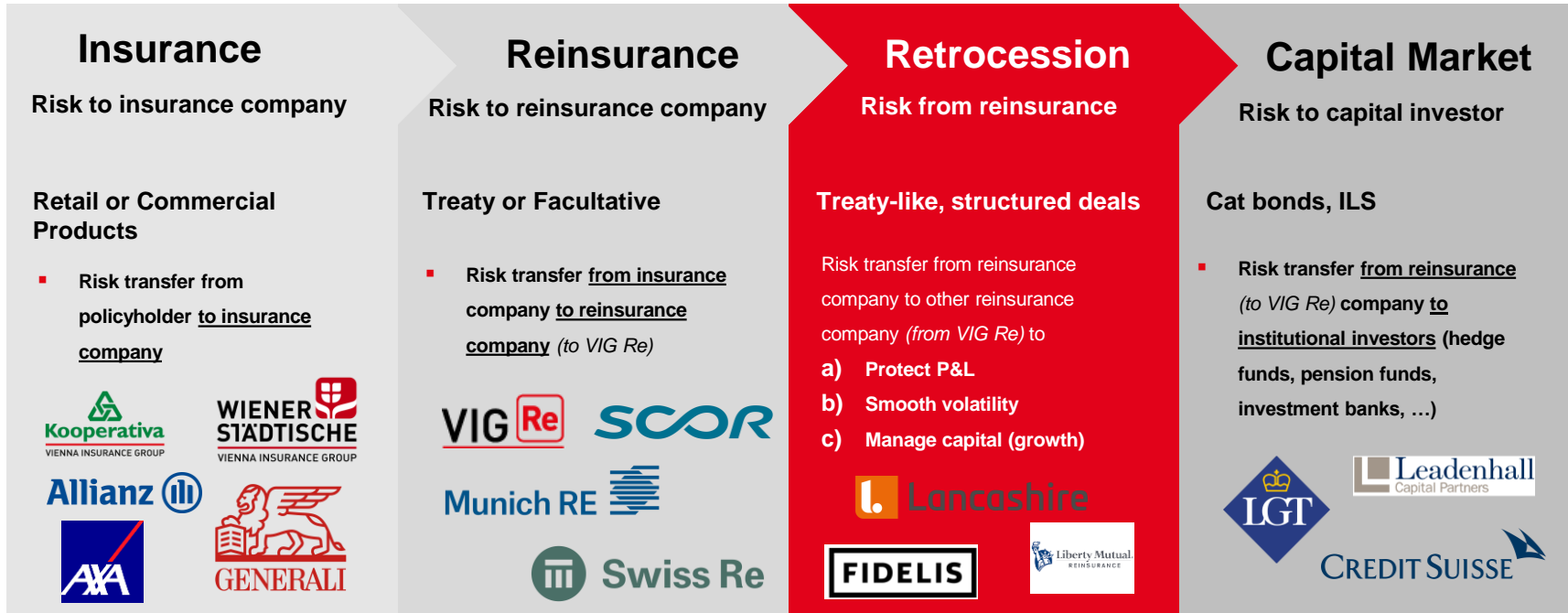
REINSURANCE PURPOSE

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Definition of Reinsurance

**Reinsurance is insurance
that is purchased by an
insurance company**

Risk Transfer through Reinsurance



Purpose

- **Risk transfer** (protection against large single losses and catastrophes)
- **Income smoother** (financial results volatility mitigation)
- **Capital relief** (reduction of solvency capital requirement)
- **Greater underwriting capacity**
- **Know-how transfer**

Reinsurance of Insurance Risk

TYPES OF REINSURANCE

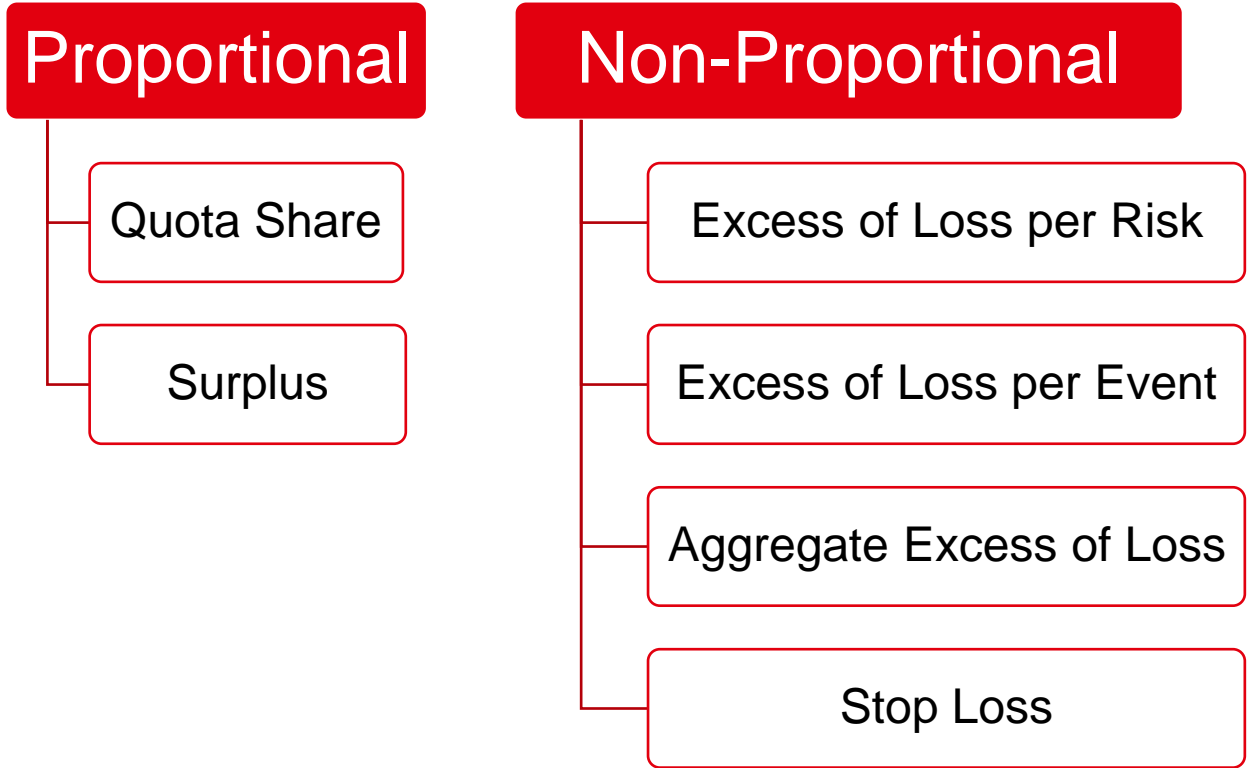
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Types of Reinsurance I

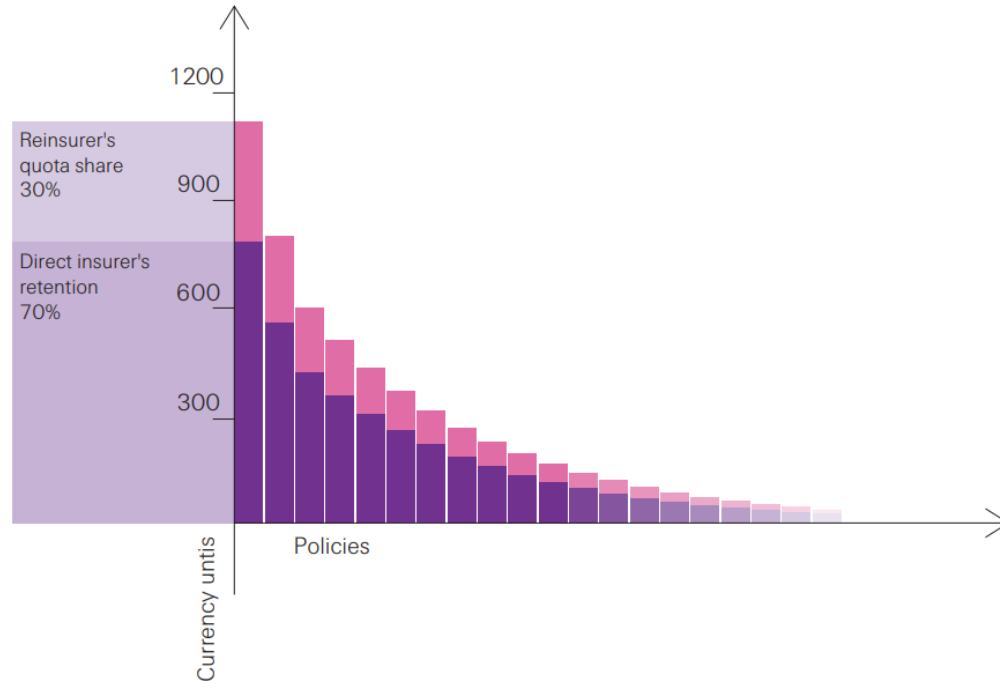
Obligatory

Facultative

Types of Reinsurance II



Types of Reinsurance II: Quota Share (QS)



Source: Swiss Re

Types of Reinsurance II: Quota Share (QS)

The primary insurer retains:	70%
The reinsurer accepts:	30%
Sum insured:	10 m
Primary insurer retains:	7 m
Reinsurer accepts:	3 m
Premium is 2‰ of the sum:	20 000
Primary insurer retains:	14 000
Reinsurer accepts:	6 000
Losses:	6 m
Primary insurer retains:	4.2 m
Reinsurer accepts:	1.8 m

Source: Swiss Re

Terms to know: commission (fixed, profit, sliding scale), event limit, loss ratio cap

Types of Reinsurance II: Quota Share (QS)

- Sum Insured $SI = 5,000,000$
- Treaty Capacity $8,000,000$
- Gross Individual Loss $X = 1,000,000$
- $q = 40\%$
- $c = 20\%$
- Gross Premium $P = 2,000$

Reinsurer's share:

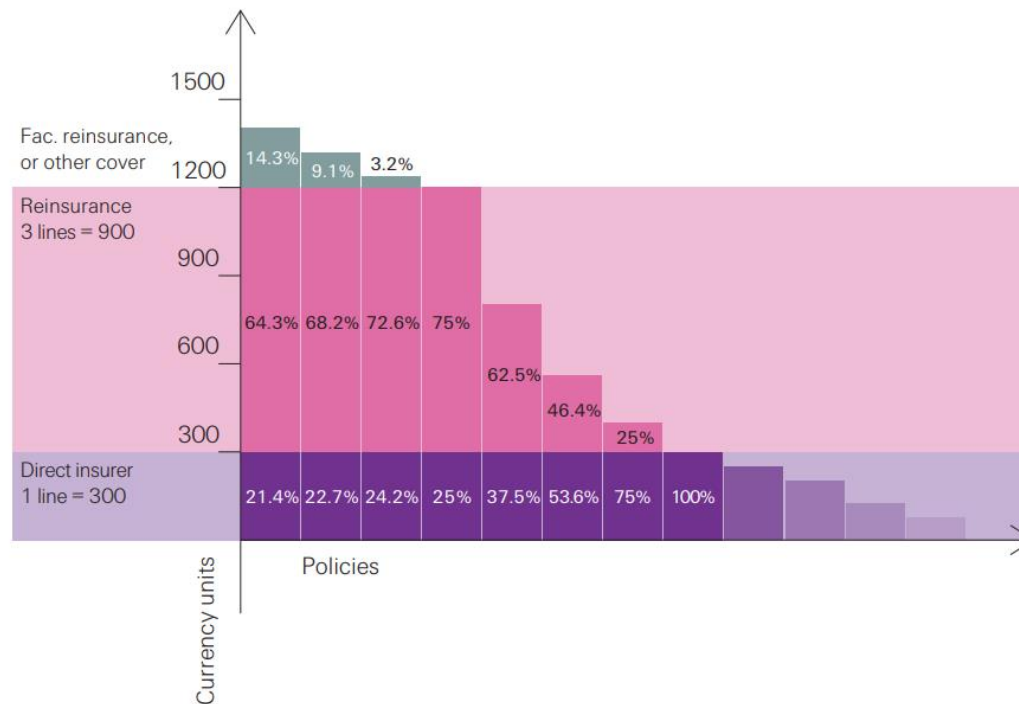
$$X_R = q * X = 400,000$$

$$P_R = q * P = 800$$

Reinsured's result:

$$(P - P_R) - (X - X_R) + c * P_R = -598,640$$

Types of Reinsurance II: Surplus



Source: Swiss Re

Types of Reinsurance II: Surplus

	Total	Insurer retains (1 line)	Reinsurer's surplus (9 lines max)
Policy I			
Sum insured	3 000 000	300 000 = 10%	2 700 000 = 90%
Premium	4 500	450 = 10%	4 050 = 90%
Losses	1 500 000	150 000 = 10%	1 350 000 = 90 %
Policy II			
Sum insured	130 000	130 000 = 100%	0 = 0%
Premium	195	195 = 100%	0 = 0%
Losses	80 000	80 000 = 100%	0 = 0%
Policy III			
Sum insured	3 500 000	300 000 = 8.57% +500 000 = 14.29% = 22.86%	2 700 000 = 77.14%
Premium	5 250	1 200 = 22.86%	4 050 = 77.14%
Losses	2 000 000	457 200 = 22.86%	1 542 800 = 77.14%

Types of Reinsurance II: Surplus

- Sum Insured $SI = 5,000,000$
- Treaty Capacity $8,000,000 \gg D = 2,000,000$ $L = 6,000,000$ (i.e. 3 lines)
- Gross Individual Loss $X = 1,000,000$
- $s = (\max(0; SI-D))/SI = 60\%$
- $c = 20\%$
- Gross Premium $P = 2,000$

Reinsurer's share:

$$X_R = s * X = 600,000$$

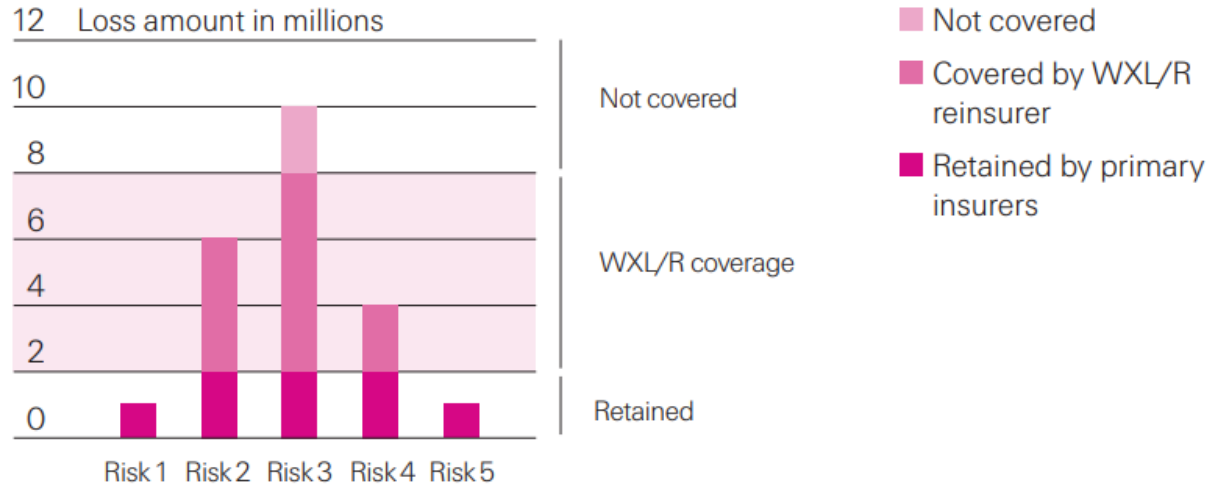
$$P_R = s * P = 1,200$$

Reinsured's result:

$$(P-P_R)-(X-X_R)+c* P_R = - 398,960$$

Types of Reinsurance II: Excess of Loss per Risk (WXL/R)

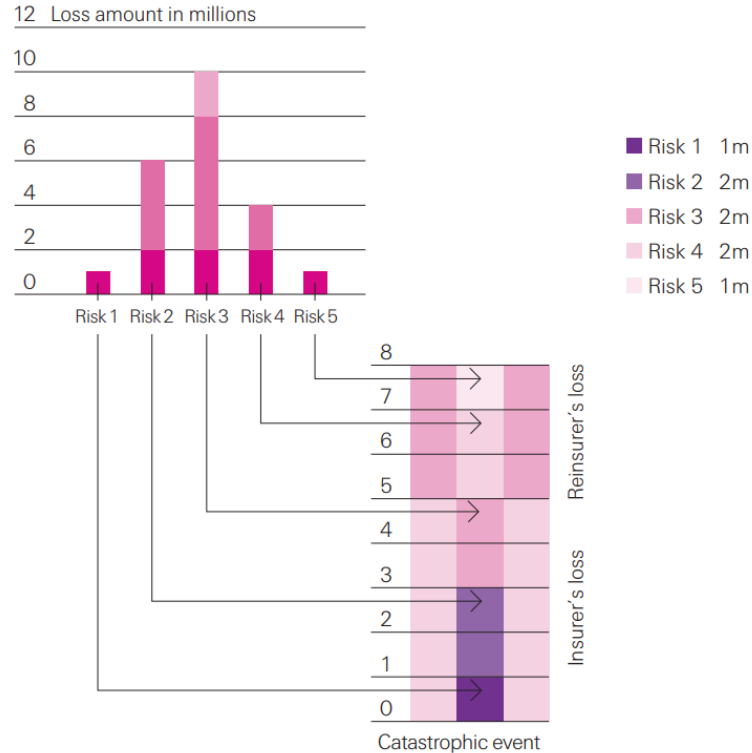
Example: WXL/R 6 xs 2 Mio.



Terms to know: reinstatement (premium), retention, limit, layer

Types of Reinsurance II: Excess of Loss per Event

Example: Cat XL 4 xs 5 Mio. (after inuring WXL/R 6 xs 2 Mio.)



Source: Swiss Re

Types of Reinsurance II: Excess of Loss per Event

Definition of "Loss Occurrence"

The words "Loss Occurrence" shall mean all individual losses arising out of and directly occasioned by one event or catastrophe. However, the duration and extent of any "Loss Occurrence" so defined shall be limited to: -

- (a) 96 consecutive hours as regards hurricane, typhoon, cyclone, windstorm, rainstorm;
- (b) 96 consecutive hours as regards hailstorm and/or tornado;
- (c) 168 consecutive hours as regards earthquake, seaquake, tidal wave and/or volcanic eruption;
- (d) 72 consecutive hours and within the limits of any one city, town or village as regards riots, civil commotions and malicious damage;
- (e) 504 consecutive hours as regards flood losses;
- (f) 168 consecutive hours for any other "Loss Occurrence" of whatsoever nature;

and no individual loss from whatever insured peril, which occurs outside these periods or areas, shall be included in that "Loss Occurrence".

The Reinsured may choose the date and time when any such period of consecutive hours commences and if any event or catastrophe is of greater duration than the above periods, the Reinsured may divide that event or catastrophe into two or more "Loss Occurrences", provided no two periods overlap and provided no period commences earlier than the date and time of the happening of the first recorded individual loss to the Reinsured in that event or catastrophe.

Reinsurance of Insurance Risk

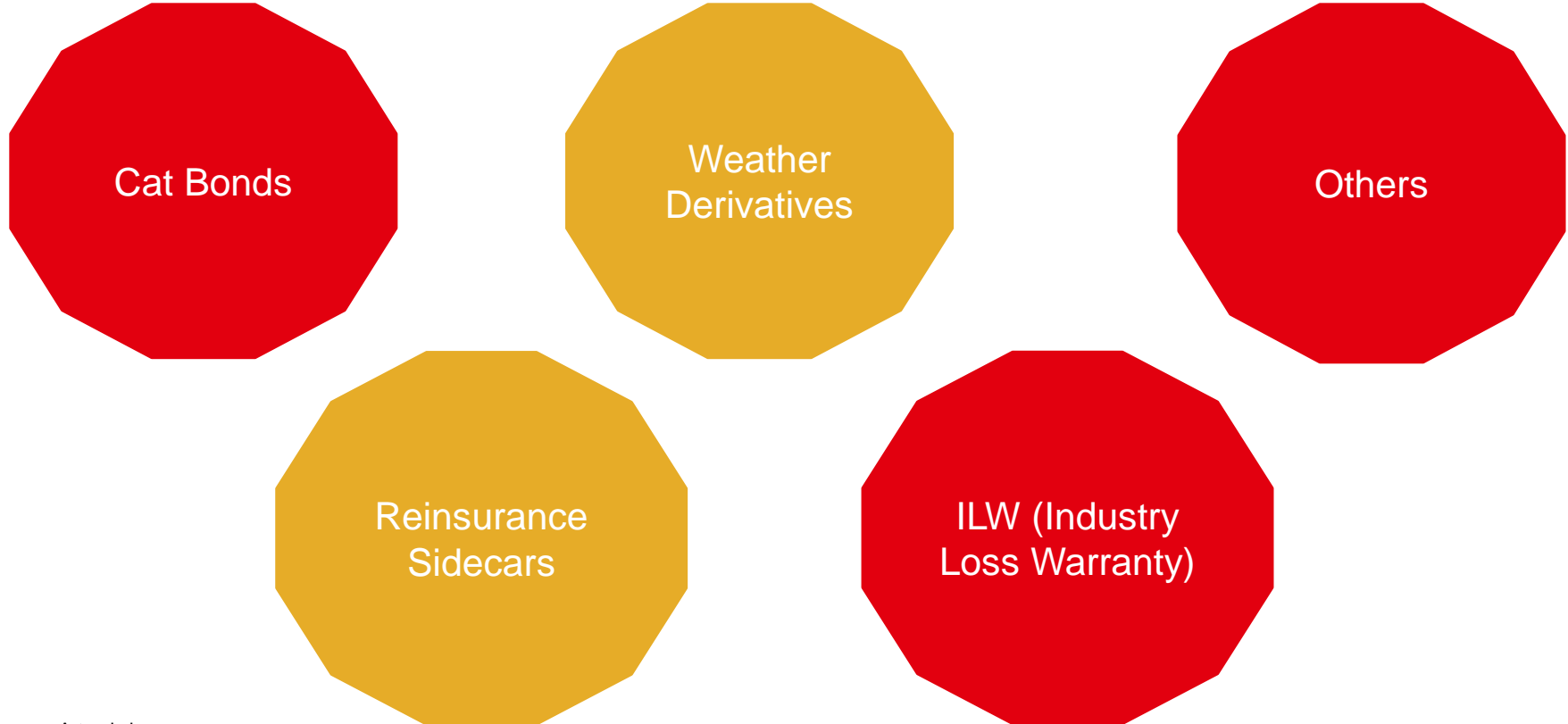
ALTERNATIVE RISK TRANSFER

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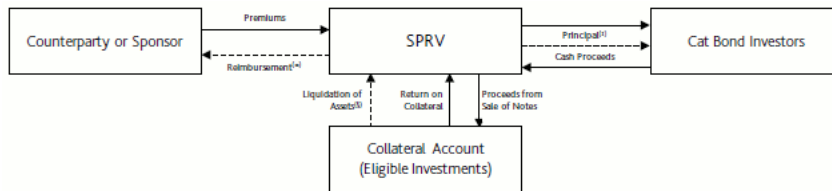
ART Definition

Alternative risk transfer, also known as ART, is the use of alternative techniques to achieve the same hedging and transfer of risk away from a risk bearing entity as with traditional insurance or reinsurance. Alternative risk transfer enables companies to transfer risks to another party or to capital markets investors and thus receive protection against certain risks the transactions aim to cover.

ART Forms



Cat Bonds



(*) Event Contingent

(1) At maturity

(2) Event contingent or at maturity

Source: Moody's Investors Service

- insurance securitization, creating risk-linked securities which transfer a specific set of risks (typically catastrophe and natural disaster risks) from an issuer or sponsor (ceding company) to capital market investors
- In this way, the investors take on the risks of a catastrophe loss or named peril event occurring in return for attractive rates of investment return. Should a qualifying catastrophe or named peril event occur, the investors will lose some or all of the principal they invested and the issuer (usually an insurance or reinsurance company, but sometimes a corporate or sovereign entity) will receive that money to cover their losses.
- Triggers: indemnity, industry loss, parametric

Industry Loss Warranty (ILW)



- **An industry loss warranty**, known as industry loss warranties or ILW's, is a form of reinsurance or derivative contract through which a company or organisation (often an insurer) can gain coverage based on the total insured loss experienced by the industry rather than their own losses from a specified event. The contracts have a specified limit which denotes the amount of compensation the buyer receives if the industry loss warranty is triggered

Collateralised Reinsurance



- The collateral is put up by investors or third-party capital providers to cover in full the potential claims that could arise from the reinsurance contract.
- Normally the collateral posted is equal to the full reinsurance contract limit, minus the net premiums charged for the protection.
- Collateralized reinsurance allows ILS funds, hedge funds, pension funds and unrated, third-party capitalised reinsurance vehicles to participate in major reinsurance programs as the contracts they write are fully-collateralised. **By participating in collateralized reinsurance activities these investors and capital providers are able to provide capital to underwrite insurance risk without requiring a rating**, thus enabling them to receive the premiums as a return on their invested collateral.

Reinsurance of Insurance Risk

CURRENT MARKET DEVELOPMENT

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Top 20 Global Reinsurers, Ranked by Unaffiliated Gross Premium Written (2021, USD Mio.)

Ranking	Company Name	Reinsurance Premiums Written				Total Shareholders' Funds ²	Ratios ³		
		Life & Non-Life		Non-Life Only			Loss	Expense	Combined
		Gross	Net	Gross	Net				
1	Munich Reinsurance Company	46,836	44,417	32,610	31,482	35,047	68.7	30.9	99.6
2	Swiss Re Ltd.	39,202	36,965	23,131	22,381	23,678	67.4	29.7	97.1
3	Hannover Rück SE ⁴	31,443	27,344	21,773	18,827	14,447	69.3	28.7	98.0
4	Canada Life Re	23,547	23,514	N/A	N/A	23,854	N/A	N/A	N/A
5	SCOR S.E.	19,933	16,242	9,319	7,939	7,251	72.0	28.6	100.6
6	Berkshire Hathaway Inc.	19,906	19,906	14,285	14,285	514,930	71.9	23.3	95.1
7	Lloyd's ^{5, 6}	19,343	14,263	19,343	14,263	48,242	65.8	29.4	95.2
8	China Reinsurance (Group) Corporation	17,808	16,181	6,956	6,608	16,104	66.6	28.4	95.1
9	Reinsurance Group of America Inc.	13,348	12,513	N/A	N/A	13,014	N/A	N/A	N/A
10	Everest Re Group Ltd.	9,067	8,536	9,067	8,536	10,139	71.6	26.5	98.1
11	PartnerRe Ltd.	8,204	7,134	6,557	5,511	7,544	64.6	25.9	90.5
12	RenaissanceRe Holdings Ltd.	7,834	5,939	7,834	5,939	7,078	74.6	27.5	102.1
13	Korean Reinsurance Company	7,145	5,102	6,043	4,078	2,126	86.4	14.2	100.6
14	Transatlantic Holdings, Inc	6,034	5,387	6,034	5,387	5,398	69.2	30.2	99.5
15	General Insurance Corporation of India ⁷	5,821	5,172	5,630	4,987	7,938	88.8	19.3	108.1
16	AXA XL	5,480	4,313	5,480	4,313	13,139	72.6	31.2	103.8
17	Arch Capital Group Ltd.	5,094	3,254	5,094	3,254	13,546	67.8	26.4	94.2
18	MS&AD Insurance Group Holdings, Inc. ^{7, 8, 11}	4,393	N/A	4,393	N/A	14,668	N/A	N/A	97.7
19	Pacific LifeCorp	4,098	3,620	N/A	N/A	17,005	N/A	N/A	N/A
20	Sompo International Holdings, Ltd.	3,855	3,417	3,855	3,417	7,433	63.5	29.5	93.1

¹ All non-USD currencies converted to USD using foreign exchange rate at company's fiscal year-end.

² As reported on balance sheet, unless otherwise noted.

³ Non-Life only.

⁴ Net premium written data not reported; net premium earned substituted.

⁵ Lloyd's premiums are for reinsurance only. Premiums for certain groups in the rankings also may include Lloyd's Syndicate premiums when applicable.

⁶ Shareholders' funds includes Lloyd's members' assets and Lloyd's central reserves.

⁷ Fiscal year ended March 31, 2022.

⁸ Net asset value used for shareholders' funds.

⁹ Ratios are as reported and calculated on a gross basis.

¹⁰ Premium data excludes intergroup reinsurance.

¹¹ Ratios are based on the group's operations.

¹² Ratios are based on Liberty Mutual Insurance Europe SE financial statements.

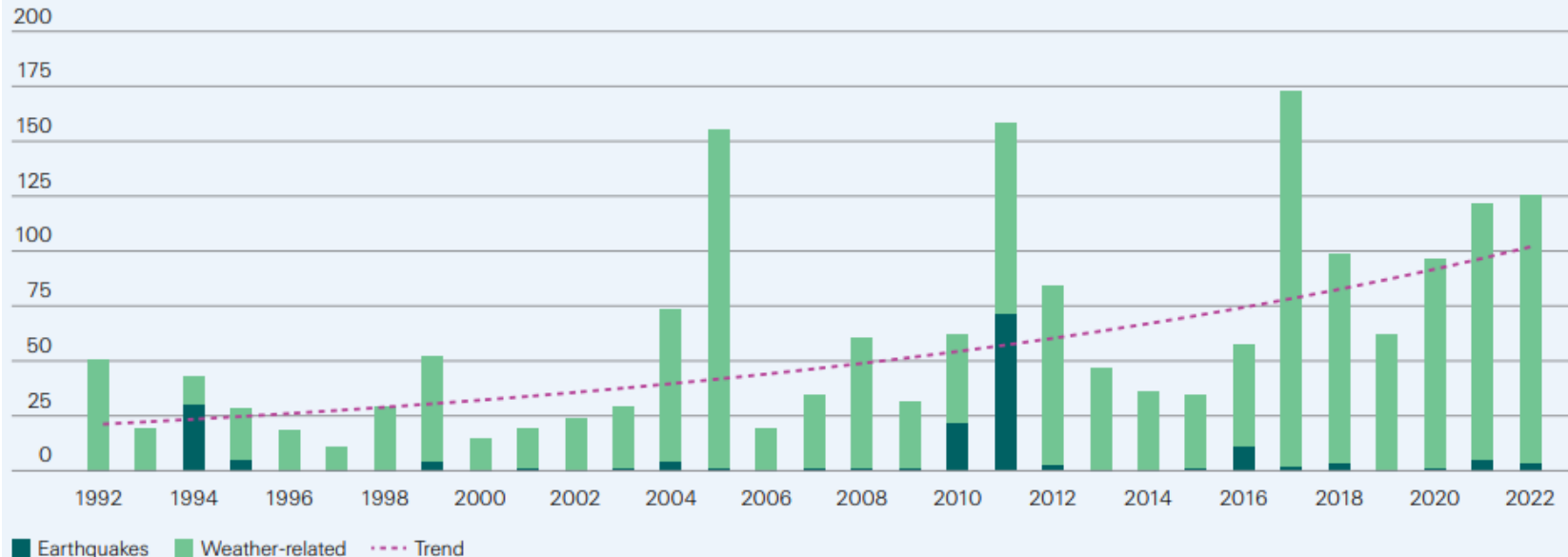
N/A = Information not applicable or not available at time of publication.

Source: AM Best data and research

Source: AM Best

Global Insured Losses from Natural Catastrophes

Growth in global natural catastrophe insured losses in USD billion (2022 prices)



Source: Swiss Re Institute

Since 1992, insured losses have grown by 5–7% on an average annual basis.

Major Event 2022



Hurricane Ian and other Nat Cat events 2022

Path of Hurricane Ian across the Caribbean into Florida

— Category 5 — Cat. 4 — Cat. 3 — Cat. 2 — Cat. 1



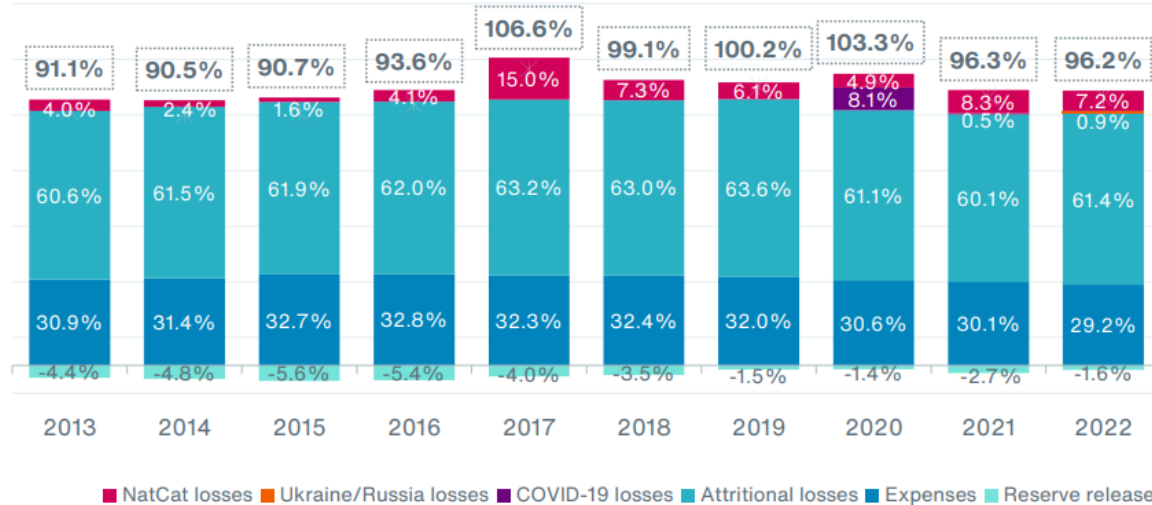
Source: National Hurricane Center

BBC

- Swiss Re: est. insured loss caused by Ian USD 50 to 65 bn (out of USD 125 bn insured Nat Cat losses globally)
- Ian was second costliest insured loss ever (after Katrina 2005)
- Australia floods (USD 4.3 bn)
- Severe convective storms North America (USD 26 bn)
- Hailstorms France (USD 5 bn)
- Winter storms in Europe (USD 4.1 bn)

Source of loss estimates: Swiss Re Institute

ARA P&C Net Combined Ratios 2022



ARA P&C
underwriting profit of
\$8.0 billion before tax
in 2022. 2017-2022
avg. CR 100.3%.

Source: Aon / company reports.

Aon's Reinsurance Aggregate („ARA“): represents above 50% of world's RI premium, companies included are: Arch, AXIS, Beazley, Everest Re, Fairfax, Hannover Re, Hiscox, Lancashire, Mapfre, Markel, Munich Re, PartnerRe, QBE, Qatar Insurance, RenRe, SCOR, Swiss Re, SiriusPoint and W.R. Berkley.

Reinsurance Market Cycle:

The insurance market is characterized by cycles. It fluctuates between soft market conditions and hard market conditions. Soft markets tend to be good for insurers because premiums hold steady or decrease. During a hard market, insurance rates increase and coverage is more difficult to obtain.

Hard vs. Soft Market Characteristics

Hard Market

Stricter Underwriting Standards
Reduced Capacity
Fewer Competitors
Higher Premiums
Restricted Coverage

Soft Market

Easier Underwriting
Increased Capacity
More Competitors
Lower Premiums
Broader Coverage



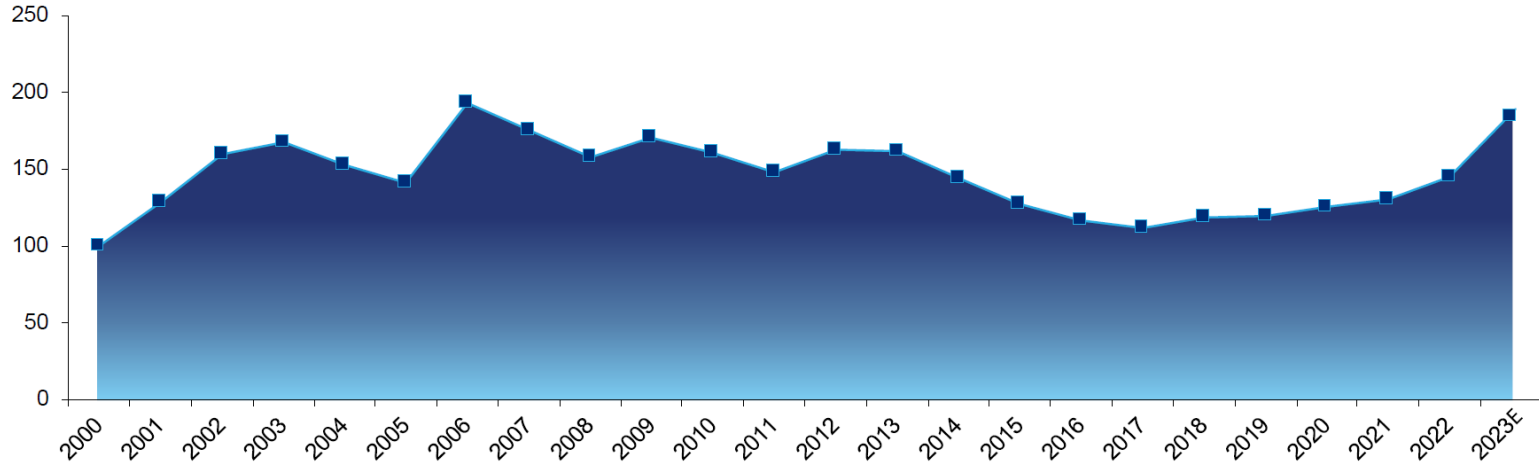
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Reinsurance Cycle Drivers 2022:

- Growth of insured losses stemming from natural catastrophes (both secondary perils and major Cat events)
- Volatility in the capital markets (rising interest rates, poor stock market performance)
- High inflation environment
- RI capital shrinkage

Guy Carpenter Global Property Cat RoL Index 2000-2023

Guy Carpenter Global Property Catastrophe Rate on Line Index - 2000 to 2023



Source: Guy Carpenter

RoL index increased by 27.5% (pricing adjustments in US and Europe). 2023 is 6th consecutive year of increases (cumulative total increase of 65%).

Thank you for your attention

Jan Hrevuš

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