somewhat different

Insights into Property & Casualty reinsurance

NatCat business at Hannover Re

Sven Althoff, Member of the Executive Board
26th International Investors' Day 2023
Berlin, 12 December 2023

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Agenda

1 Market environment

2 NatCat exposure management and results

3 Outlook and key takeaways
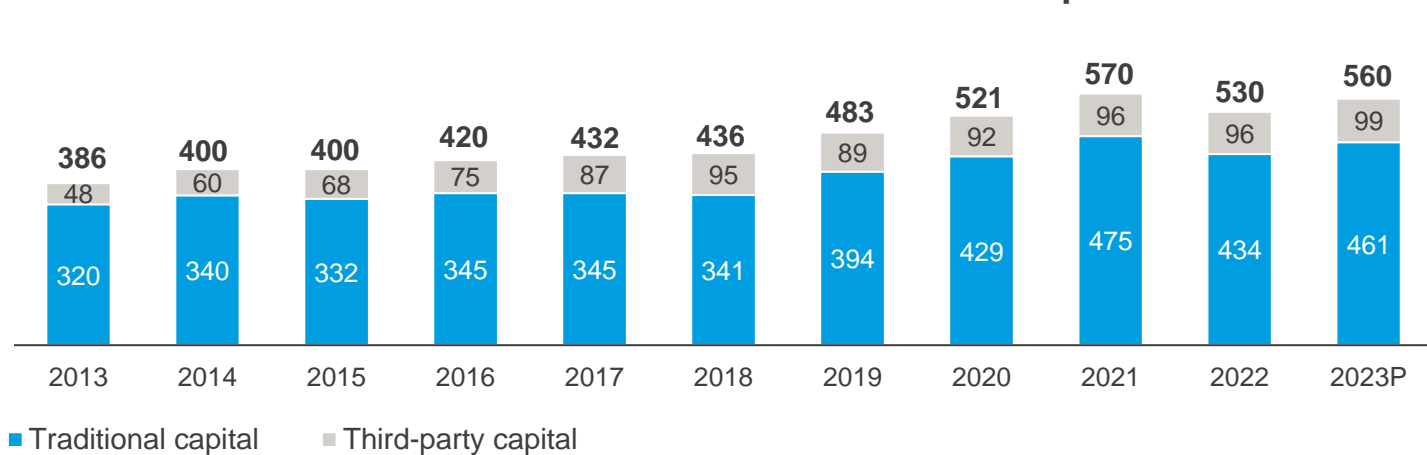
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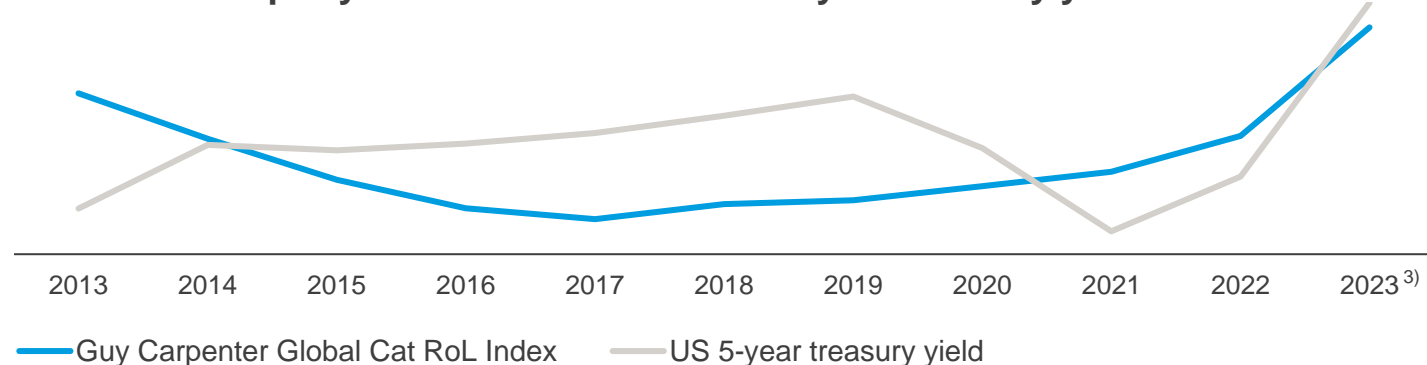## Market environment

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P&C market environment at attractive level
No material inflow of new capacity despite significant rate increases

Global Reinsurance – Estimated Dedicated Reinsurance Capital[1]   in bn. USD

Bar chart showing Traditional capital and Third-party capital:

Year	Total	Third-party capital	Traditional capital
2013	386	48	320
2014	400	60	340
2015	400	68	332
2016	420	75	345
2017	432	87	345
2018	436	95	341
2019	483	89	394
2020	521	92	429
2021	570	96	475
2022	530	96	434
2023P	560	99	461

■ Traditional capital   ■ Third-party capital

GC Global Property Cat RoL Index[2] vs. US 5-year treasury yield

— Guy Carpenter Global Cat RoL Index   — US 5-year treasury yield

- i Decrease in capital in 2022 mainly driven by unrealised investment losses

- i No material inflow of new traditional or alternative capital

- i Reinsurance industry remains well capitalised, but is more selective in allocating capital

- i Strong reinsurance rate increase in 2022 and 2023 driven by loss experience and inflation

- i Imbalance in supply & demand resulted in significant price reaction in prop. cat in 2023 renewals

1) Source: Best's Market Segment Report, 21. August 2023, 2022 traditional capital includes USD 23 m. fixed-income equity
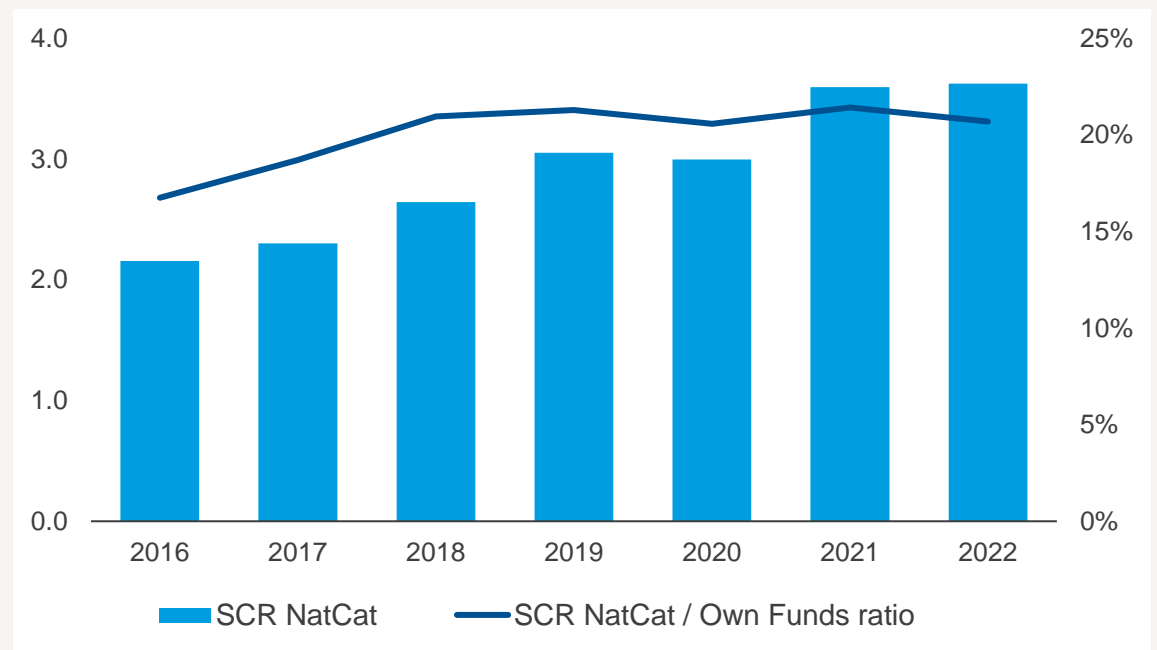2) Source: Artemis Guy Carpenter RoL Index   3) Preliminary numbers

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2 NatCat exposure management and results

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# Overall cat exposure growing in line with available capital
Improved diversification mitigates increase in capital requirements

Solvency capital requirement (SCR) NatCat   in bn. USD

- SCR NatCat
- SCR NatCat / Own Funds ratio

- Largely stable cat appetite and consistent approach to clients over the cycle
- Cat business largely written as part of client relationship and not on a stand-alone basis
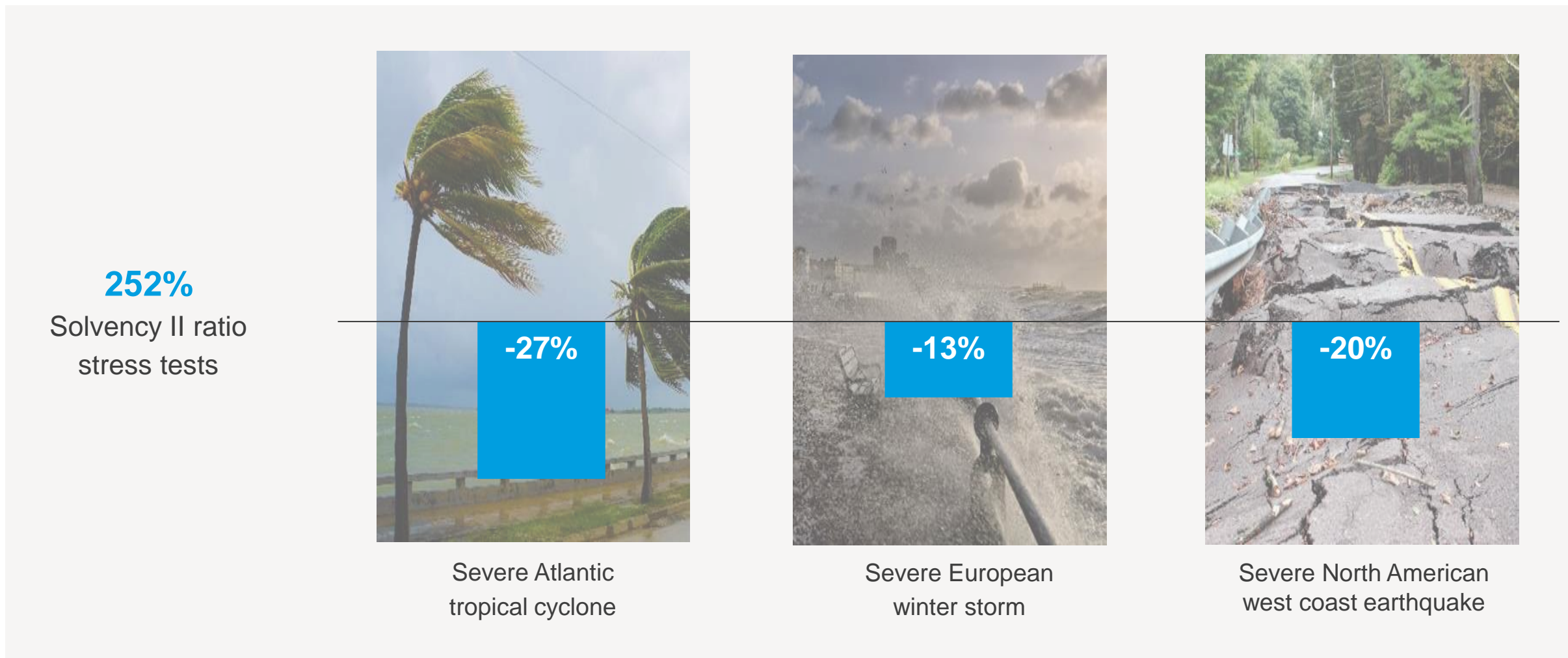
99% Tail Value at Risk NatCat   in bn. USD

- US+Car
- South+Middle America
- Canada
- EU
- Asia
- AU/NZ
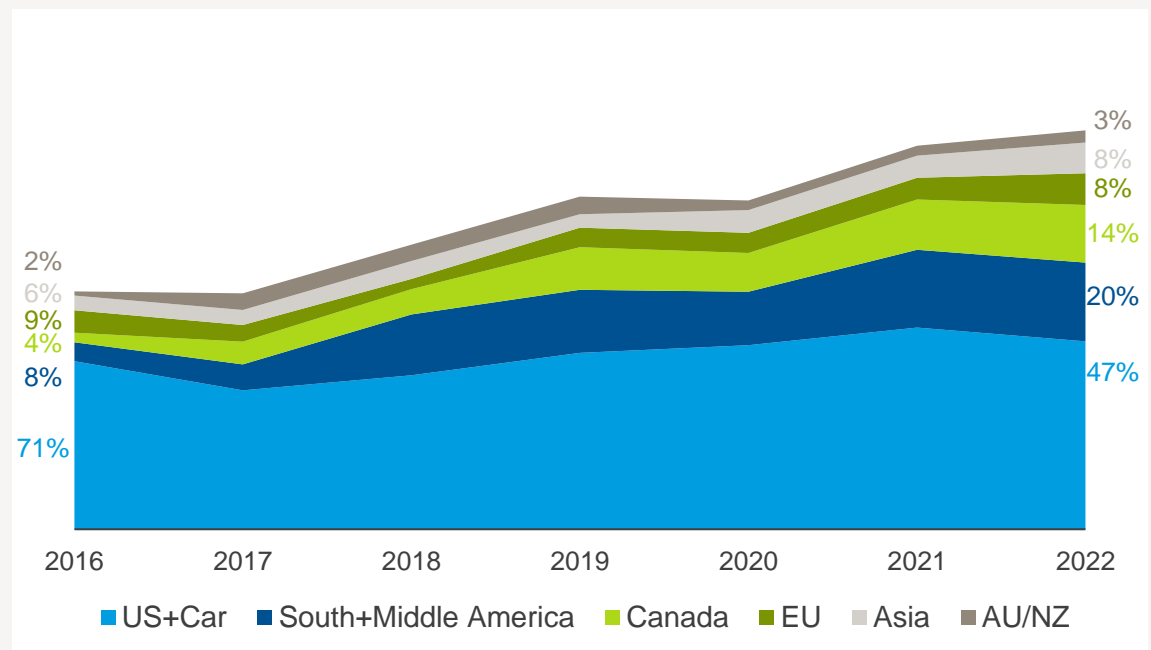
- Limited appetite to grow largest exposure US tropical cyclone
- Attractive growth opportunities in other regions improve risk profile of cat portfolio

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Individual events with limited impact on Solvency ratio
Solvency ratio robust under stressed conditions

252%
Solvency II ratio
stress tests

-27%

-13%

-20%

Severe Atlantic
tropical cyclone

Severe European
winter storm

Severe North American
west coast earthquake

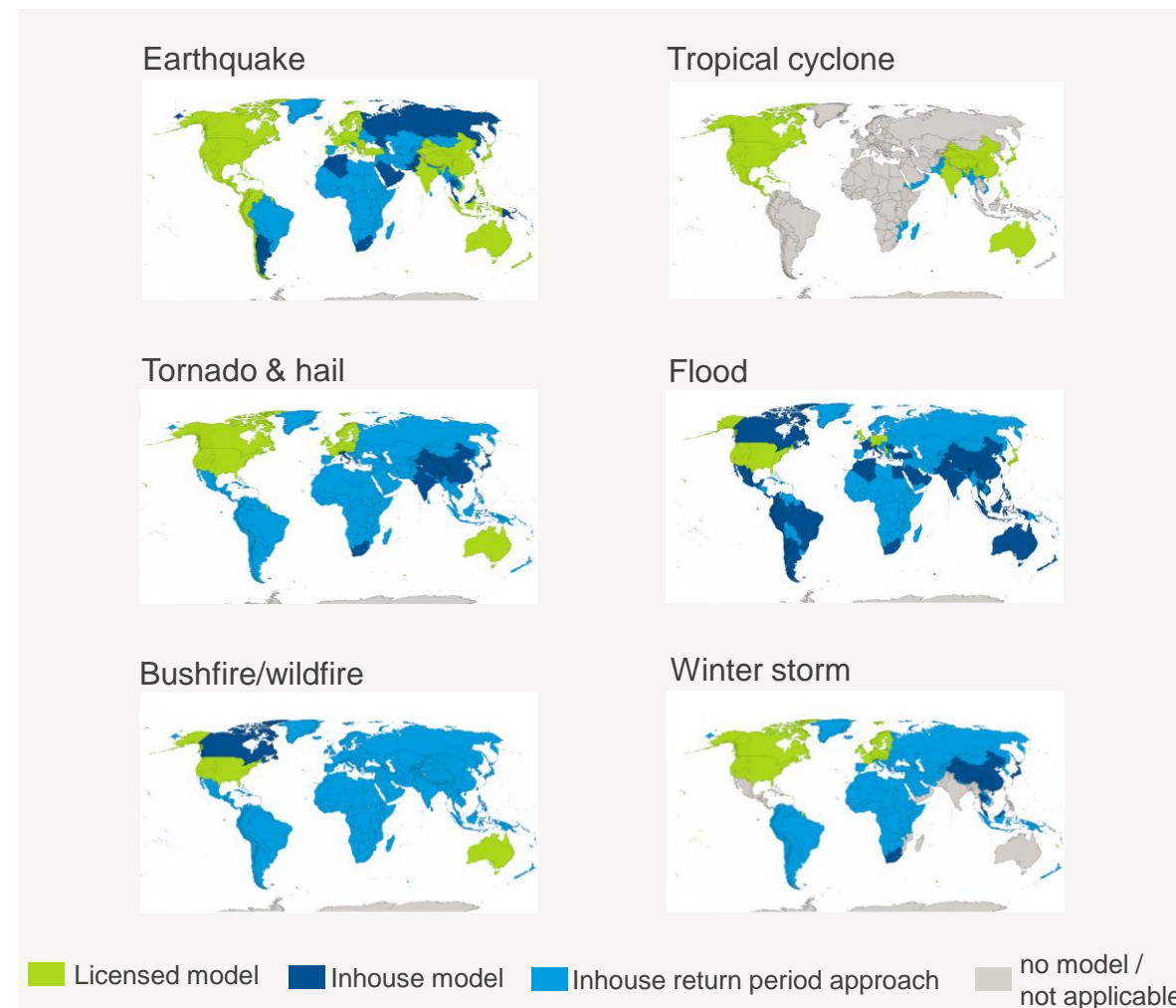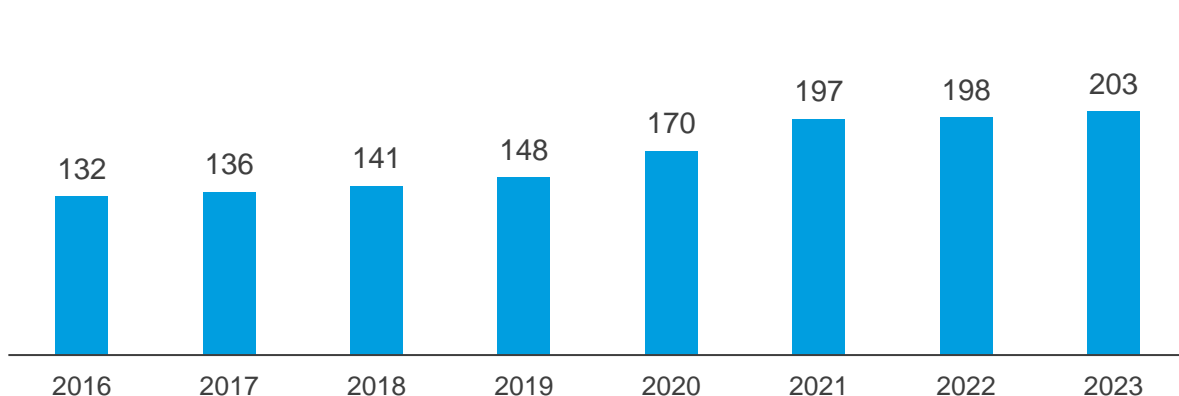250 year return period acc. to our internal model (Year End 2022) which is equivalent to an occurrence probability of 0.4%

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Continuous expansion of cat models outside of peak regions and perils
Strong modelling capabilities are key to pricing and exposure management

Number of country-peril combinations included in internal model

Earthquake

Tropical cyclone

Tornado & hail

Flood

Bushfire/wildfire

Winter storm

■ Licensed model ■ Inhouse model ■ Inhouse return period approach ■ no model / not applicable
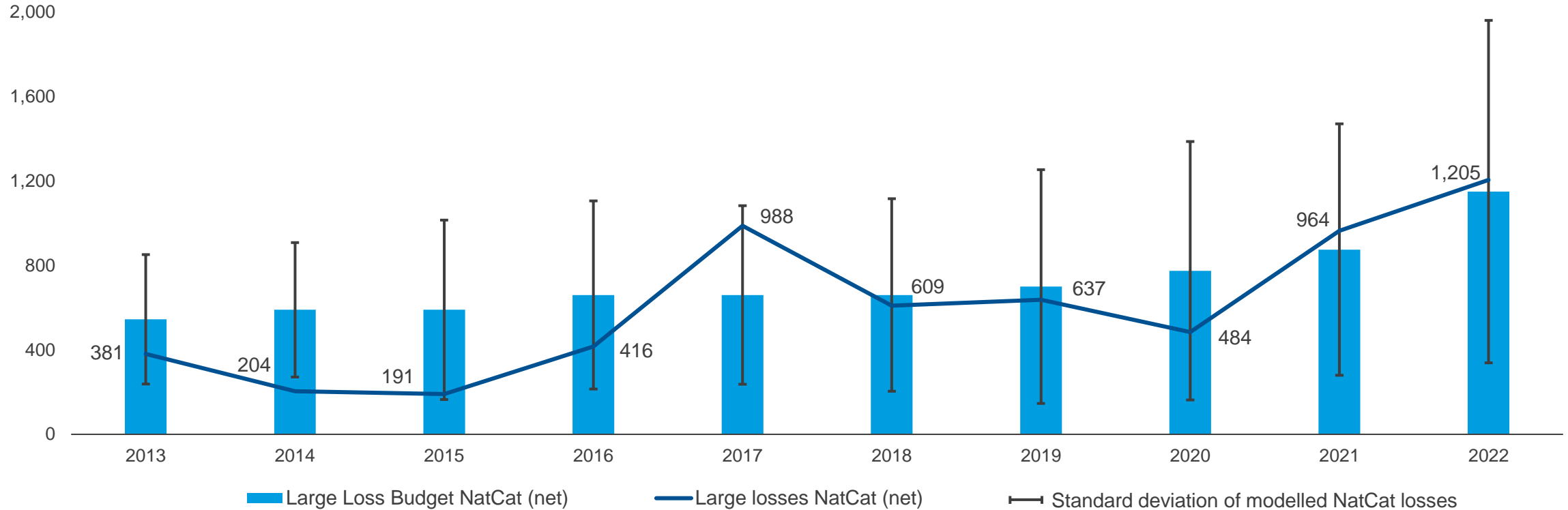
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Effective exposure risk management
Net losses from natural catastrophes on average 81% of large loss budget

Net large losses from natural catastrophes vs. budget   in m. EUR

Legend: Large Loss Budget NatCat (net) — Large losses NatCat (net) — Standard deviation of modelled NatCat losses

Data points (Large losses NatCat net): 2013: 381, 2014: 204, 2015: 191, 2016: 416, 2017: 988, 2018: 609, 2019: 637, 2020: 484, 2021: 964, 2022: 1,205

Hannover Re market share of total insured losses[1] from natural catastrophes

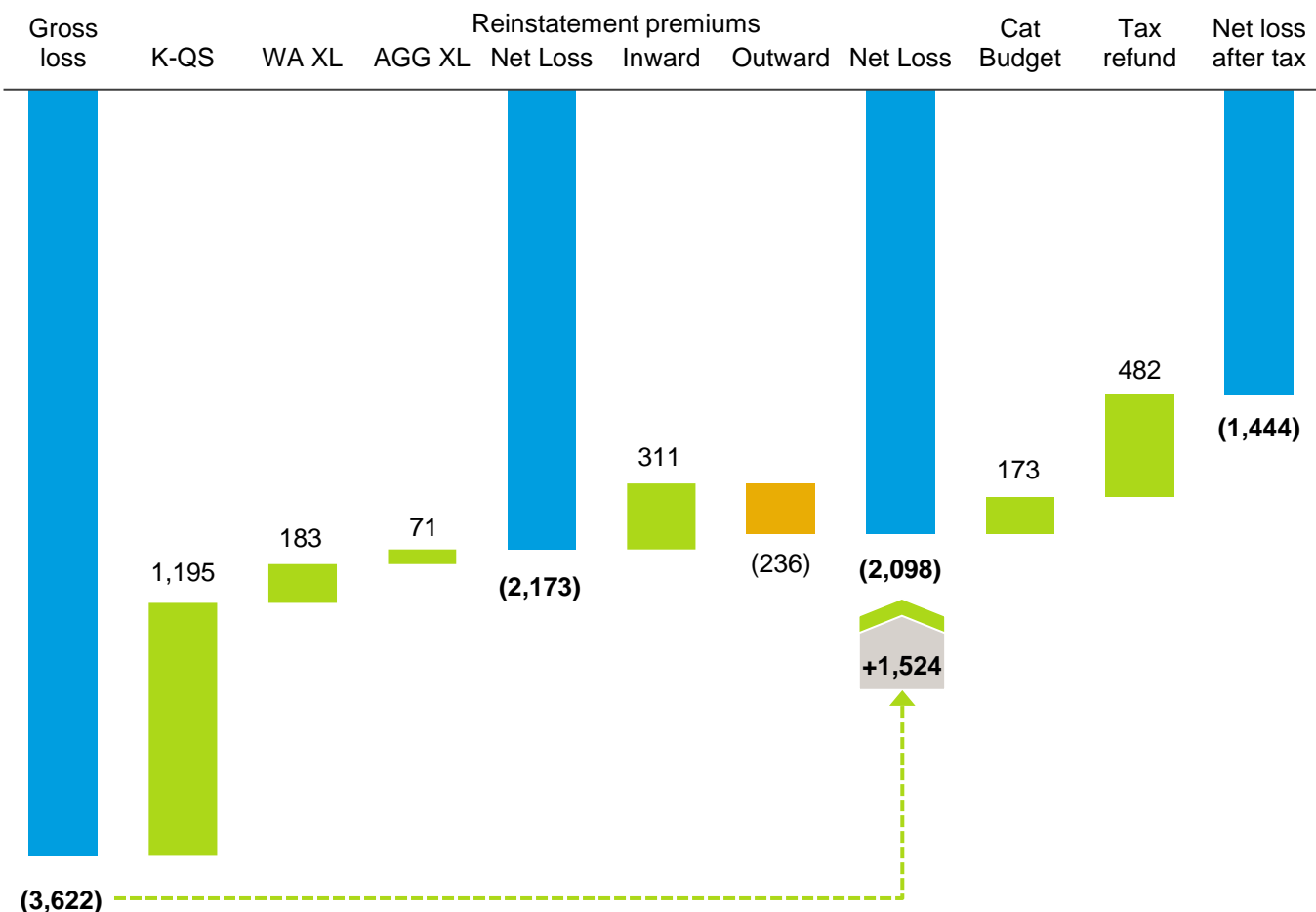| 2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
1.2%	0.8%	0.7%	0.9%	0.7%	0.8%	1.3%	0.6%	1.1%	1.0%

1) Source: Swiss Re Sigma

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Retrocessions significantly reduce net NatCat exposures (1)
Gross / net impacts for the scenario US tropical cyclone

2023: 250y event (market loss of 309 bn. EUR)   in m. EUR

Retrocession structure reduces market share of loss[1] from 1.2% to 0.5%

- Gross loss based on aggregates as of 1 Jul 2023, FX rates as of 30 Sep 2023

- Retrocessions as of 1 Jul 2023, Large Loss AGG XL with gross occurrence limit of EUR 650 m.

- Results (incl. market loss) are based on the average of 21 events around the 250y event on the annual occurrence loss curve (min. / max. market loss: 130.7 bn. EUR / 637.5 bn. EUR)
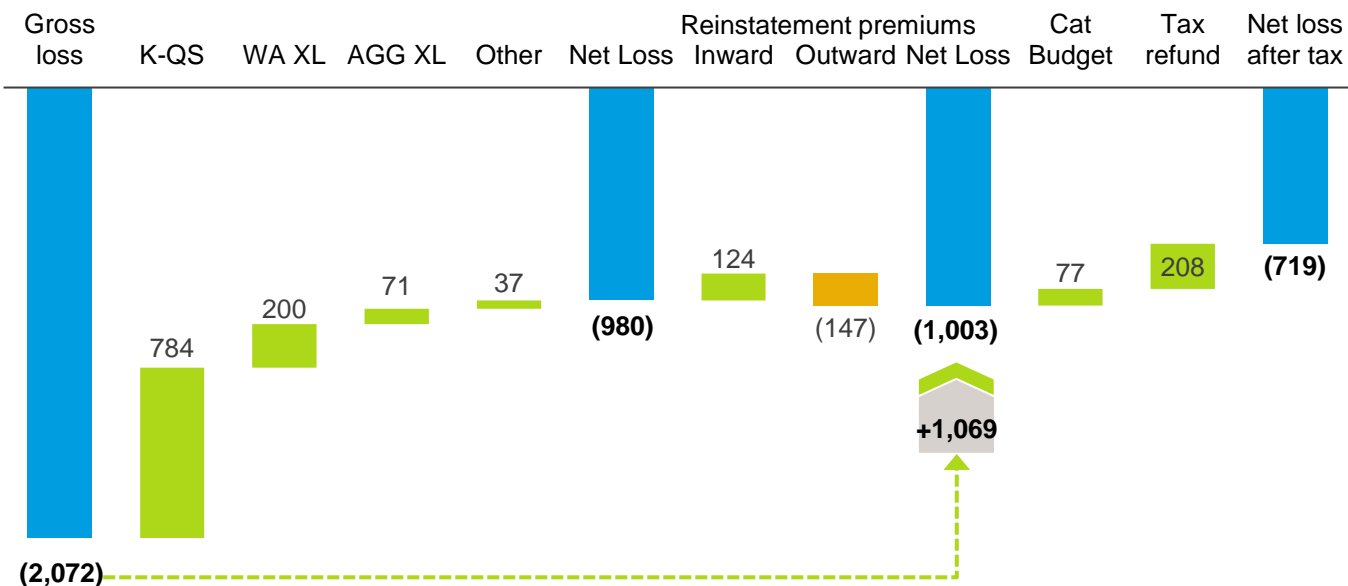
1) Based on modelled figures. Market share of loss is the proportion of the gross loss (respectively net loss after tax) relative to the market loss.

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Retrocessions significantly reduce net NatCat exposures (2)
Gross / net impacts for the scenario EU winter storm

2023: 250y event (market loss of 31 bn. EUR)   in m. EUR

Gross loss	K-QS	WA XL	AGG XL	Other	Net Loss	Reinstatement premiums Inward	Reinstatement premiums Outward	Net Loss	Cat Budget	Tax refund	Net loss after tax
(2,072)	784	200	71	37	(980)	124	(147)	(1,003)	77	208	(719)

+1,069

Retrocession structure reduces market share of loss[1] from 6.7% to 2.3%

- Gross loss based on aggregates as of 1 Jul 2023, FX rates as of 30 Sep 2023

- Retrocessions as of 1 Jul 2023, Large Loss AGG XL with gross occurrence limit of EUR 650 m.

- Results (incl. market loss) are based on the average of 21 events around the 250y event on the annual occurrence loss curve (min. / max. market loss: 19.7 bn. EUR / 66.0 bn. EUR)
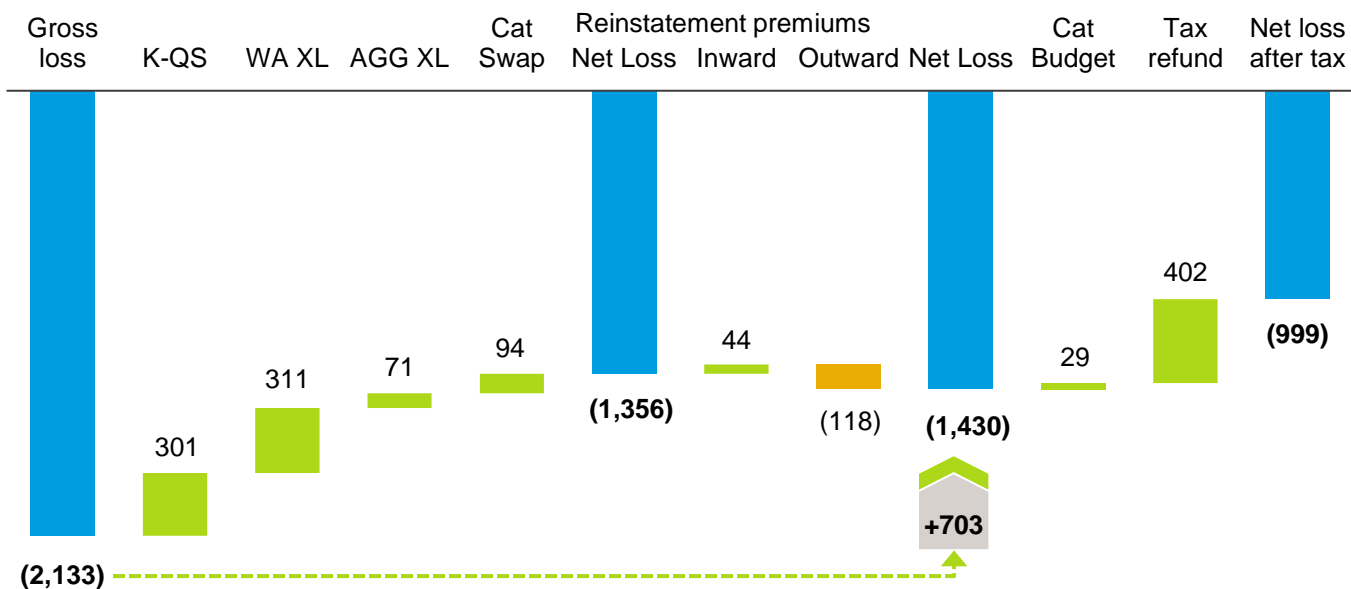
1) Based on modelled figures. Market share of loss is the proportion of the gross loss (respectively net loss after tax) relative to the market loss.

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Retrocessions significantly reduce net NatCat exposures (3)
Gross / net impacts for the scenario Chile earthquake (largest non-peak scenario)

2023: 250y event (market loss of 12 bn. EUR)   in m. EUR

Waterfall chart labels:

Gross loss	K-QS	WA XL	AGG XL	Cat Swap	Reinstatement premiums Net Loss	Inward	Outward	Net Loss	Cat Budget	Tax refund	Net loss after tax
	301	311	71	94		44			29	402	
(2,133)					(1,356)		(118)	(1,430)			(999)

+703

**Retrocession structure reduces market share of loss[1] from 17.8% to 8.3%**

- Gross loss based on aggregates as of 1 Jul 2023, FX rates as of 30 Sep 2023

- Retrocessions as of 1 Jul 2023, Large Loss AGG XL with gross occurrence limit of EUR 650 m.

- Results (incl. market loss) are based on the average of 21 events around the 250y event on the annual occurrence loss curve (min. / max. market loss: 9.2 bn. EUR / 16.9 bn. EUR)

1) Based on modelled figures. Market share of loss is the proportion of the gross loss (respectively net loss after tax) relative to the market loss.
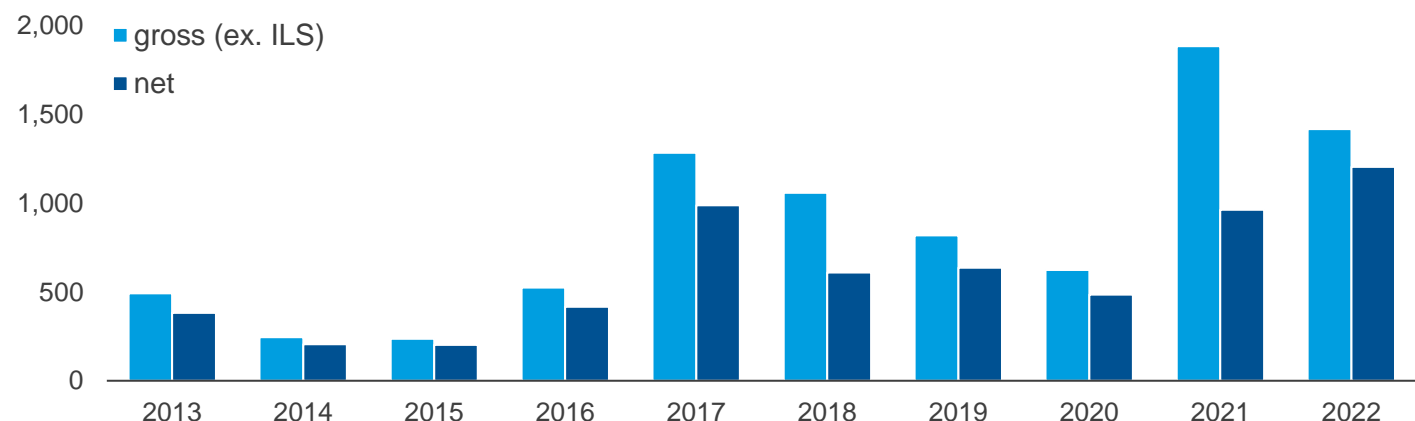
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Hannover Re's NatCat business is profitable over the cycle
Retrocession reduces volatility

Gross technical result NatCat XL

Large losses from natural catastrophes

- gross (ex. ILS)
- net
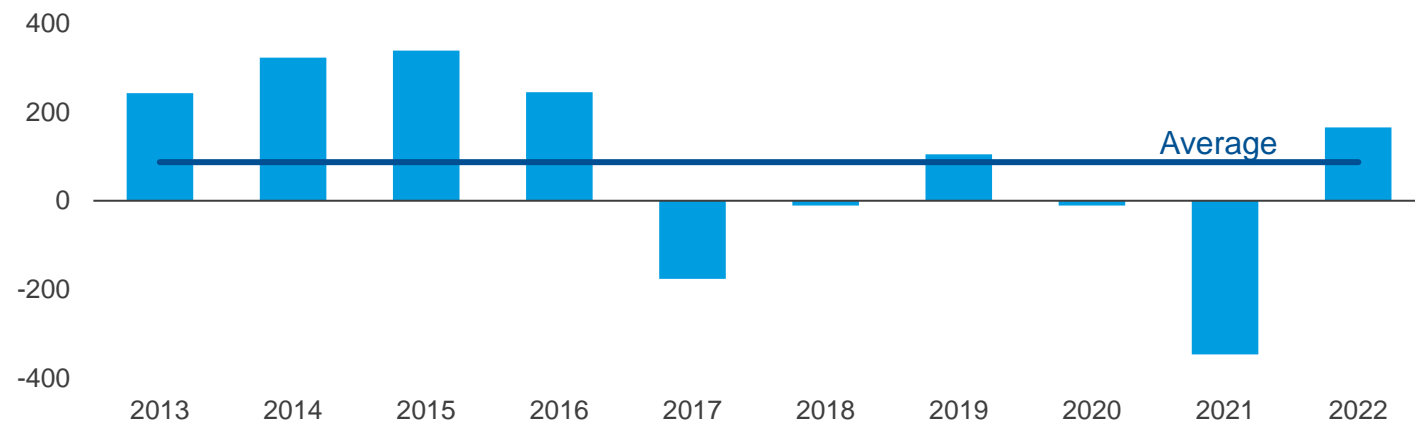
ℹ Positive gross technical result over the cycle

ℹ Expected profitability for UY2023 at very attractive levels clearly above cost of capital

ℹ Retrocession reduces gross loss by 25% on average…
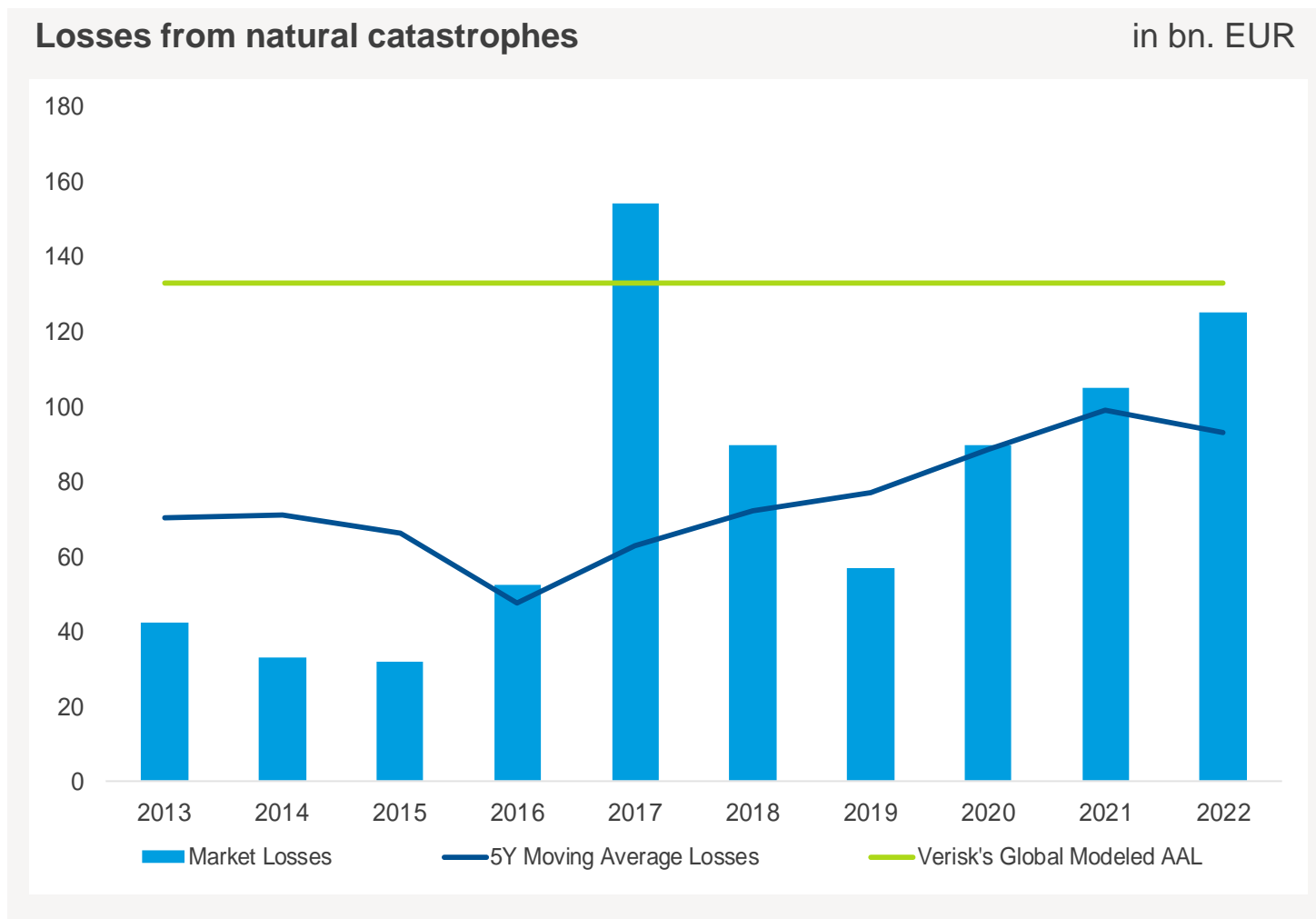
ℹ … and up to 49% in 2021
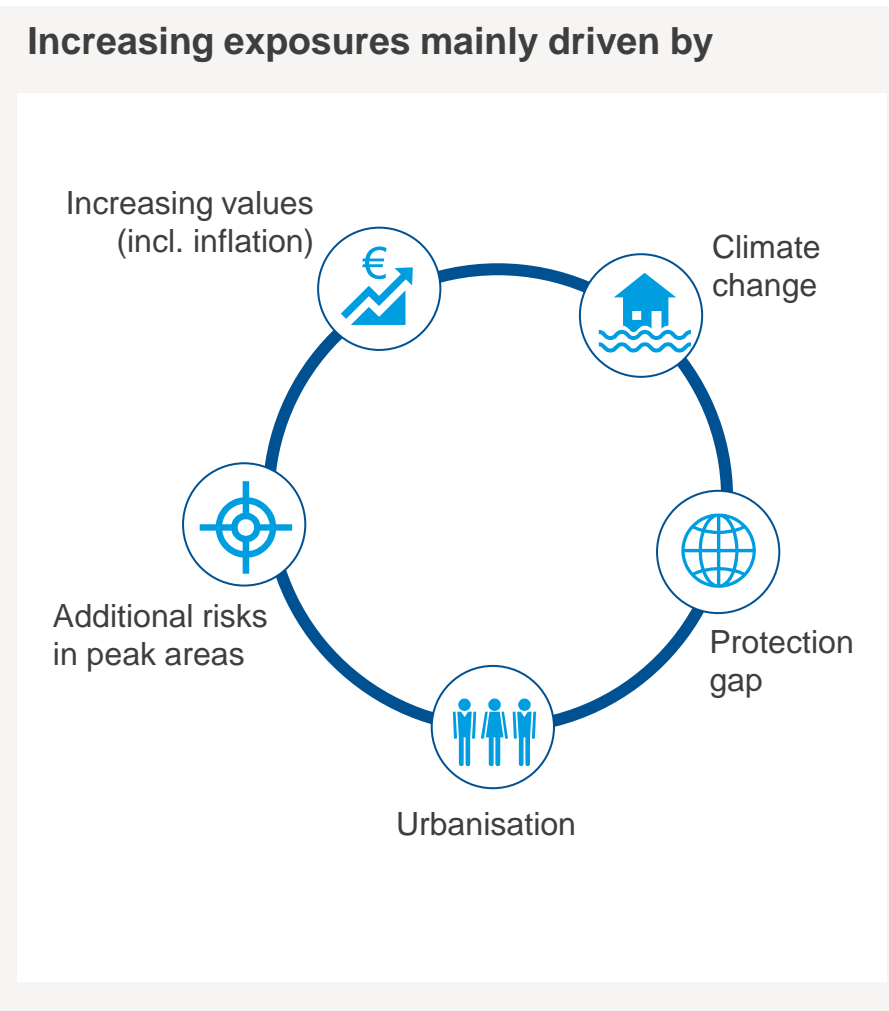
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Outlook and key takeaways

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Increasing demand in an attractive line of business
Continuous increase in modelled losses from natural catastrophes

Losses from natural catastrophes

in bn. EUR

Market Losses —— 5Y Moving Average Losses —— Verisk's Global Modeled AAL

Increasing exposures mainly driven by

Increasing values (incl. inflation)

Climate change

Additional risks in peak areas

Protection gap

Urbanisation

Source: Swiss Re Sigma, Verisk; Verisk AAL = global aggregate average annual loss

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Key takeaways

i Strong track record in managing and pricing of NatCat exposure

i Overall stable net risk appetite for NatCat business with increasing focus on diversification

i NatCat capacity largely offered as part of client relationship

i Efficient retrocession programme reduces volatility

i Hannover Re's NatCat portfolio is profitable over the cycle

i Expected profitability for NatCat business UY2023 at very attractive levels clearly above cost of capital

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