The Munich Re Group
Investors' Day on Risk Management

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Münchener Rück
Munich Re Group

27 June 2005

Agenda for the day

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9.00	– 9.15	Introduction
9.15	– 10.45	Economic capital disclosure
10.45	– 11.15	Coffee break
11.15	– 12.30	Integrated risk management at Munich Re
13.00		Lunch

Overview

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Overview

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Highly committed to my programme

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My words from the analysts' conference 2004:

Major milestones have been reached

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- First time in-depth disclosure of risk capital and diversification effect – Though capital model operational for over four years
- Economic perspective supports sustainable value creation – No window dressing
- High commitment to our transparent IFRS-based 12% RoE-target for 2005
- However, growing market acceptance of economic-based steering principles and Munich Re derisking programme both encourage embracing risk-adjusted return measures
- The first step taken today: Full transparency of our economic capital position

Sustainable profitability will not be sacrificed – Period!

Significant quantitative and qualitative improvement in Group economic capital position

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- During 2004, Group available financial resources increased by €1.9bn, whilst Group required risk capital reduced by €3.1bn
- Diversification effects have improved and dominance of market risk decreased
- "Hard" capital buffer – No reliance on soft capital
- Current barriers to aligning capital position to the pure economic requirements:
  - The need to hold capital buffers for stress scenarios;
  - Limited quantitative recognition of diversification in factor-based rating agency models
- There are converging views on the importance of quantitative recognition of diversification benefits. Munich Re Group likely to be a major ultimate beneficiary of "convergence"

Significant improvement in economic financial strength

Enhancing our ability to provide share-holders with a sustainable return in excess of the cost of capital

Opening the door to the strategic vision: Sustainable profits coupled with active capital management

Opening the door to the strategic vision: Sustainable profits coupled with active capital management

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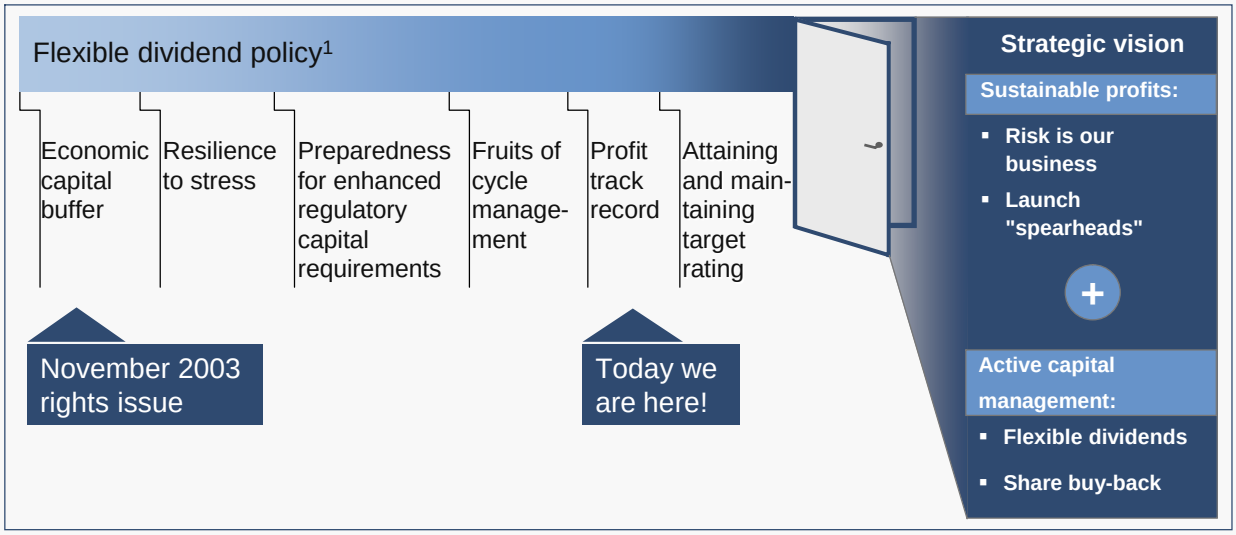

Guiding principle along the journey: Rigorous assessment of all options available for sustainable shareholder value creation

[1] Striving for pay-out ratio of at least 25%.

Overview

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Internal capital model
Firmly embedded in management applications

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Management applications	
Capital allocation	✓
A/L management	✓
Risk steering	✓
Pricing	✓
Performance measurement	✓
Risk mitigation (e.g. retrocession)	✓
Regulatory purposes	✓
Underwriting	✓
Management compensation	✓

Actively steering the path to sustainable profitability

Munich Re capital model foundation

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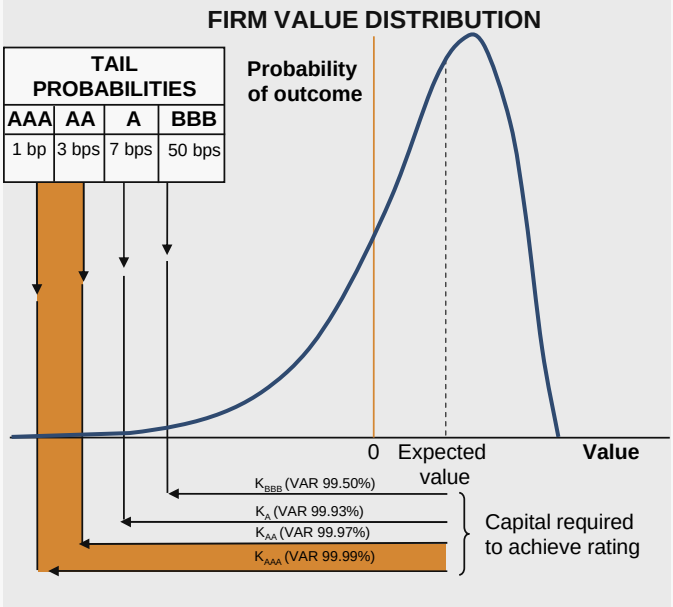
Transparent calibration of risk tolerance



- Value distribution built from detailed risk modelling and aggregation considering (stress) correlations
- Uniform time horizon of one year adopted
- Solvency standard related to likelihood of default – Anchored to observable corporate bond default rates

Adapted to reinsurance losses

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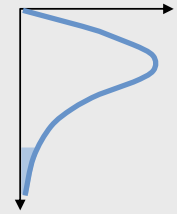
Dissect capital requirements into two parts

Capital depletion from first 1 in 100 year loss (VAR 99.0%)

+



Capital depletion from second 1 in 100 year loss (second VAR 99.0%)

Notes

- Not possible to measure with confidence the 1 in 10,000 year loss (VAR 99.99%)
- Two-step approach does not stretch capabilities of models
- Munich Re adopted risk tolerance of two consecutive 1 in 100 year losses[1]

Illustrative

[1] Equivalent to an economic probability of default observed for AA to AAA rated companies

Capital determined using a "risk building blocks" approach

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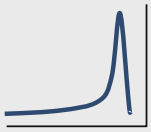
RISK

Asset risk

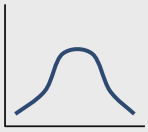
Credit risk

- Corporate bonds
- Retrocession ceded
- Other receivables



Market risk

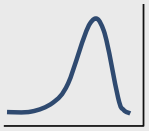
- Equities, property
- Interest rate risk (ALM)
- Foreign exchange



Insurance risk

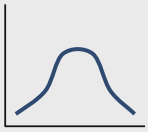
P-C

- NatCat and other large losses
- Loss due to premium insufficiency
- Reserve uncertainty



L&H

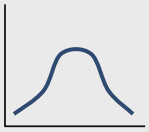
- Mortality/ longevity
- Morbidity
- Persistency



Operational risk

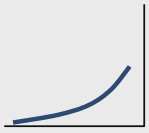
Business risk

- Changes in volume
- Changes in pricing margins and expenses



Event risk

- Fraud
- Errors
- Systems interruption



Credit taken for diversification in Group internal model follows accepted industry standards and is supported by capital mobility

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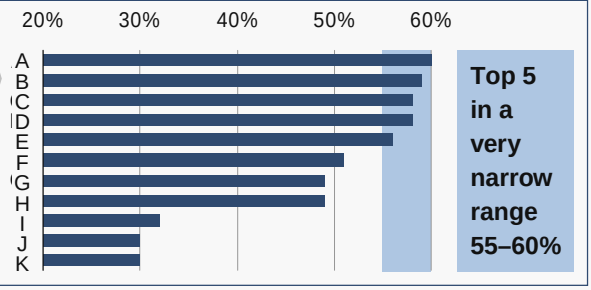
Munich Re Group: High level of capital mobility supports credit taken for diversification

- "Banks typically operate from a single (or a small number) of balance sheets, and they finance the aggregate risk of the group from a single 'pot' of capital;
- Insurers typically have to have multiple separate legal entities, and so have multiple 'pots' of capital supporting the aggregate risk profile;
- Global reinsurers that operate from a dominant branch structure are closer to banks in this respect than they are to primary insurers with multiple subsidiaries"

Diversification level definitions used in CRO Forum study[1]

- Level 1: Within risk types
- Level 2: Across risk types
- Level 3: Across entities within one geography
- Level 4: Across geographies or regulatory jurisdictions

Measured diversification effects across CRO Forum member companies (Levels 1 to 4)[1]



[1] Source: "A framework for incorporating diversification in the solvency assessment of insurers", The Chief Risk Officer Forum, 10 June 2005.

Our approach to diversification is inextricably tied to a conservative assessment of capital fungibility

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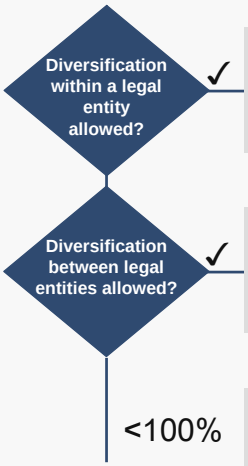


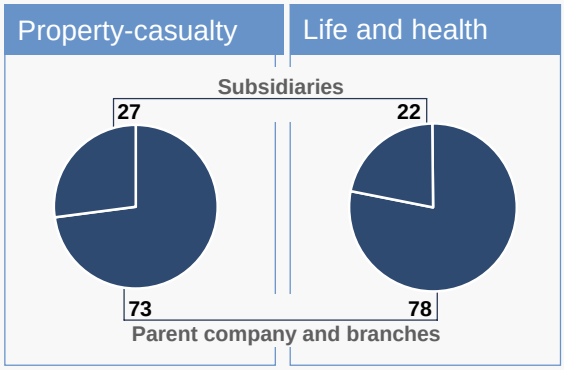
Subject to satisfaction of minimum solvency requirements

Where capital and/or risk fungibility is assured

Where capital and/or risk fungibility is subject to significant frictional costs

Allocation of reinsurance segment business by legal entities[1]

in %



[1] Based on gross written premiums CY 2004

In reinsurance segment, dominant parent/branch structure and intra-Group retrocession supports credit taken for diversification[2] – Our captured diversification benefit is a "hard" benefit

[2] Although calculated, no credit is taken for diversification between legal entities in primary segment and no credit taken for diversification between primary and reinsurance segments either → conservative approach

Overview

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Available financial resources and required risk capital

Munich Re Group balance sheet: Derivation of economic equity from IFRS equity

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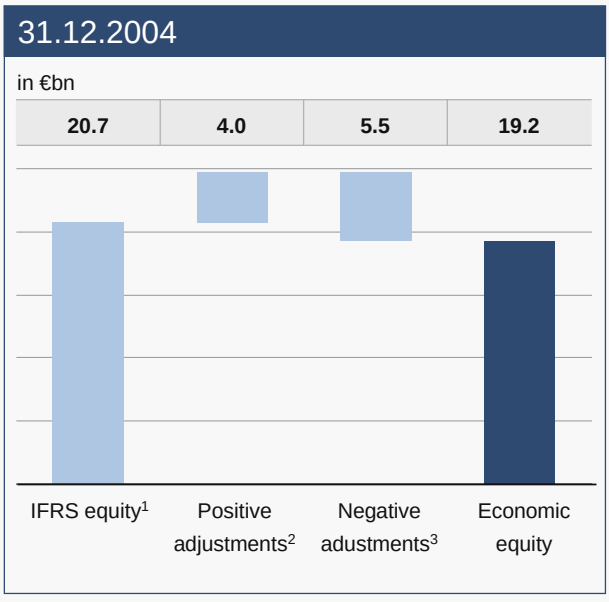

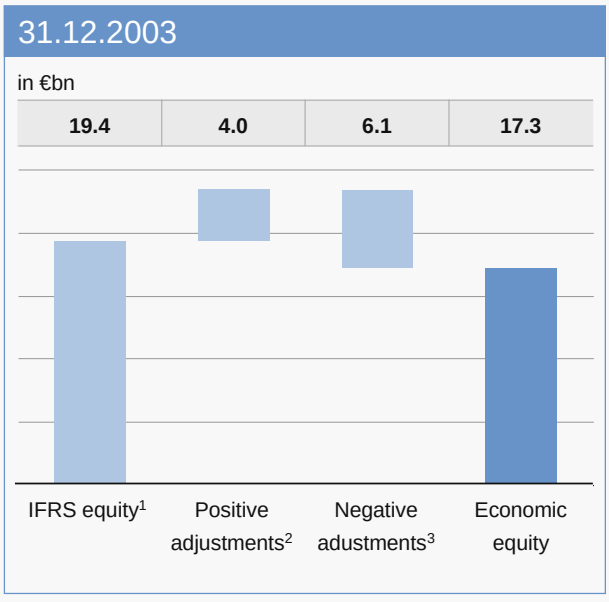

[1] Minorities included in IFRS equity pursuant to first-time application of IAS 1 (rev. 2003) from 2005.

[2] **Positive adjustments** represent embedded value not recognised in IFRS equity, valuation reserves and discounting (after tax) of P-C reserves.

[3] **Negative adjustments** represent goodwill, other intangibles and the loss carry-forward component of deferred tax assets.

Munich Re Group balance sheet: Detailed derivation of economic equity from IFRS equity 31.12.2004

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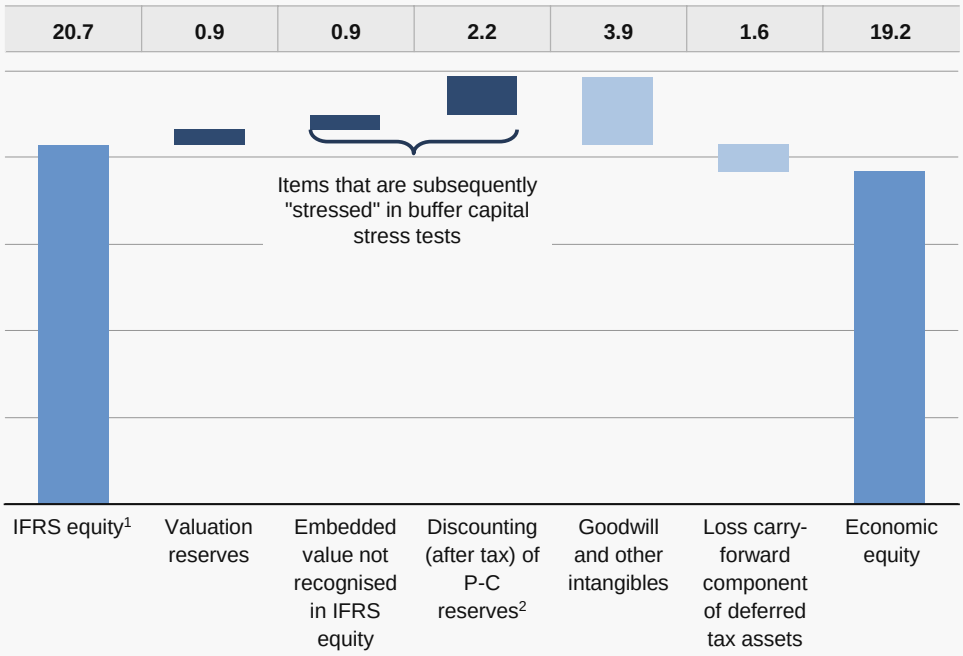
in €bn



[1] Minorities included in IFRS equity pursuant to first-time application of IAS 1 (rev. 2003) from 2005.

[2] Represents IFRS reserves less the economic value of reserves, determined by discounting the expected pay-out pattern of outstanding claims at the after-tax currency-specific risk-free rates.

Munich Re Group available financial resources improved

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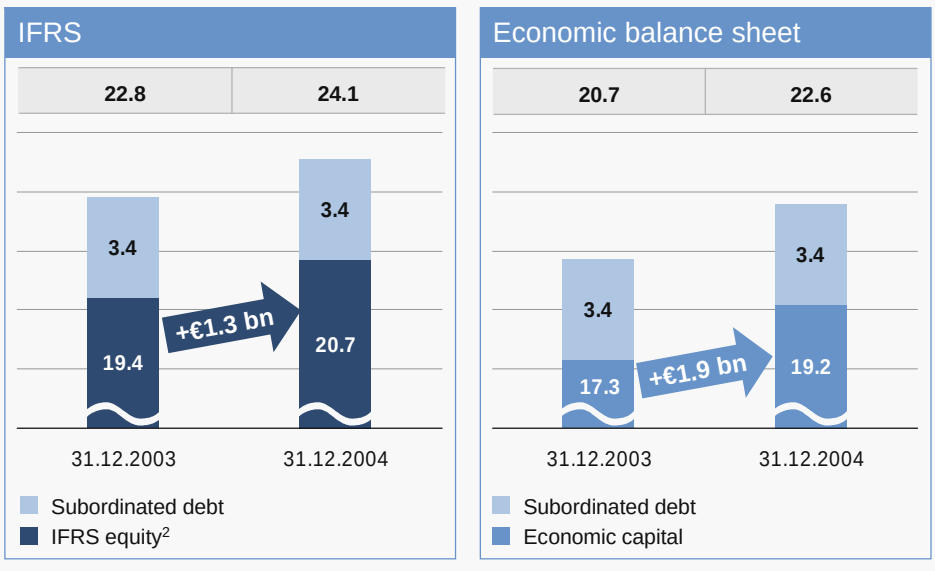
Available financial resources (AFR)[1]



- Increase in AFR (€1.3 bn on IFRS/ €1.9 bn on economic) largely explained by strong net Group result 2004 (€1.8 bn)
- Subordinated debt is part of available financial resources – Full TAC (Total Adjusted Capital) credit received from S&P

[1] AFR represents the sum of IFRS equity or economic capital (economic balance sheet) plus subordinated debt.

[2] Minorities included in IFRS equity pursuant to first-time application of IAS 1 (rev. 2003) from 2005.

Available financial resources and required risk capital

Breakdown of Group required risk capital as at 1 January 2005

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in €bn	1 January 2005		1 January 2004		▲ in %
Risk category[1]	**Stand-alone**	**Group**	**Stand-alone**	**Group**	
Reinsurance segment					
Property-casualty	5.9		6.6		–10.6
Life and health	2.2		1.7		29.4
Market	8.6		11.5		–25.2
Credit	0.6		0.7		–14.3
→ Simple sum		17.3		20.5	–15.6
→ Segment diversification effect[2]		–6.2		–6.0	3.3
Total reinsurance segment		**11.1**		**14.5**	**–23.4**
Primary insurance segment					
Property-casualty	0.6		0.5		20.0
Life and health	0.4		0.4		–
Market	2.0		1.8		11.1
Credit	0.3		0.3		–
→ Simple sum		3.3		3.0	10.0
→ Segment diversification effect[2]		0.0		0.0	–
Total primary insurance segment		**3.3**		**3.0**	**10.0**
Munich Re Group total		**14.4**		**17.5**	**–17.7**

[1] Risk categories broadly based on refined "Fischer II" risk categories recommended for standardised industry disclosures. Munich Re Group includes an allowance for operational risk in each of the risk categories.

[2] The measured diversification effect depends on the number of risk categories considered. Represents diversification effect recognised in internal model – Diversification effects between legal entities within primary segment and between primary and reinsurance segment are not recognised.

Available financial resources and required risk capital

Group risk type analysis – Breakdown by stand-alone shareholder risk-based capital (RBC)

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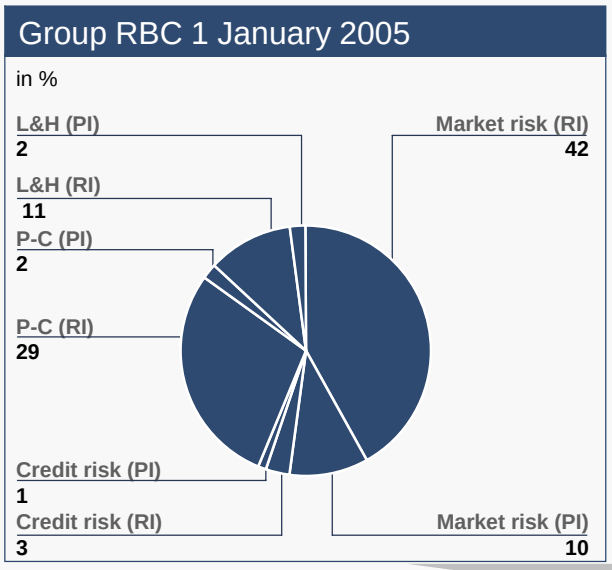
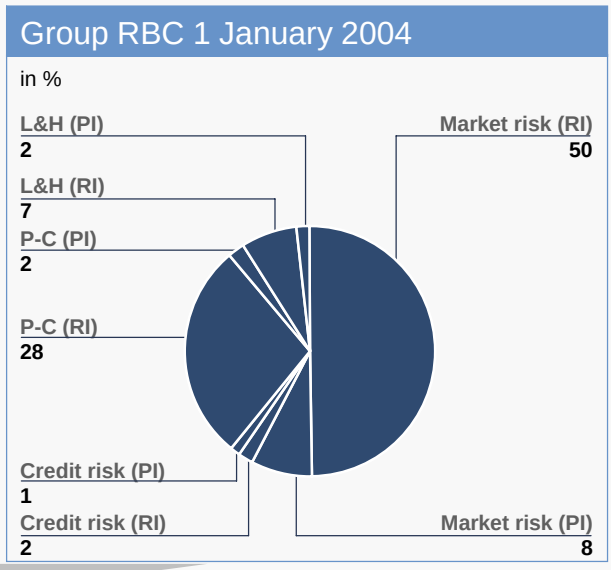
Group RBC 1 January 2005



Group RBC 1 January 2004



Reinsurance market and credit risk dominance reduced (from 52% to 45%)

→ Abundant financial flexibility to harvest benefits of further derisking

RI: Reinsurance segment PI: Primary insurance segment

Progress made in derisking of reinsurance segments in 2004

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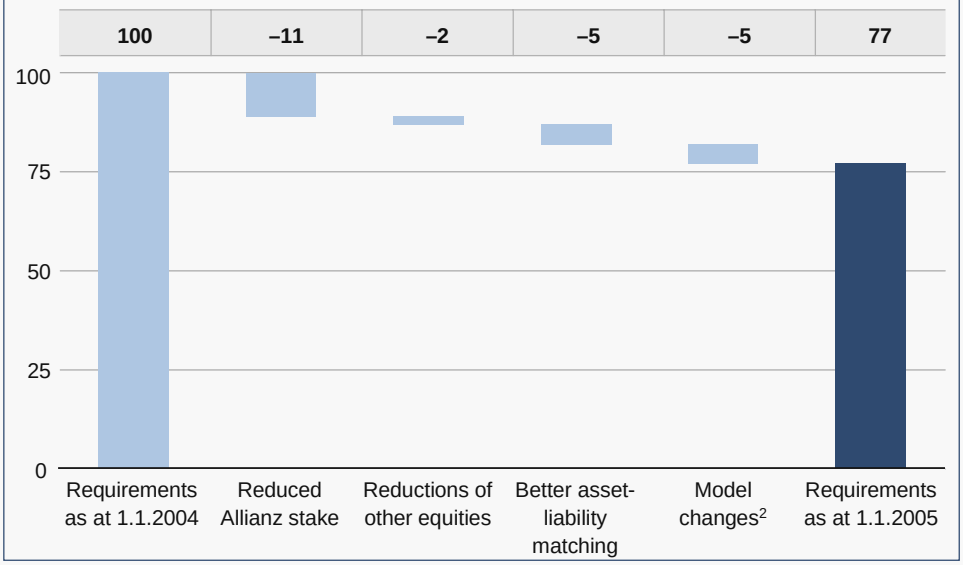
Development of stand-alone market and credit risk capital requirements of the reinsurance segment[1]

in % of beginning-of-year requirements



Significantly reducing our concentration risks and improving the quality of our capital

[1] Based on our internal model – Risk capital requirements calibrated to withstand two consecutive 1 in 100 year losses.

[2] Munich Re Group now uses the proprietary model of Barrie & Hibbert Ltd. for determining market risk capital requirements.

Counterparty investment credit risk forms a minor component of Group risk-based capital (RBC) requirements

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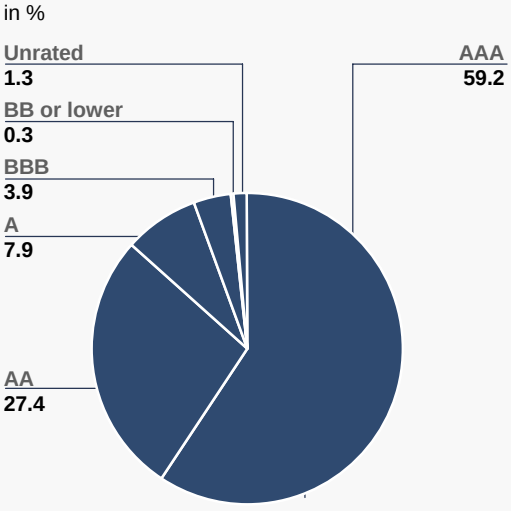
Breakdown of Group fixed-income portfolio by rating structure 1.1.2005

in %



- 95% of portfolio rated "A" or better
- Relatively minor credit counterparty risk:
  - Required stand-alone RBC in reinsurance segment of €0.6bn (3% of simple sum of segment RBC requirements)
  - Required stand-alone RBC in primary insurance segment of €0.3bn (9% of simple sum of segment RBC requirements)

Available financial resources and required risk capital

Our derisking strategy is on track – Our portfolio is better diversified and less vulnerable to financial market risks

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Required risk capital reduced from €17.5bn to €14.4bn y/y[1]

- Reinsurance market and credit risks strongly reduced: Concentration risks brought down significantly
- Reinsurance P-C required risk capital slightly decreased: Royal & Sun Alliance treaty expiration and improved portfolio mix – Cancellations in high risk segments (US casualty, EU motor)
- Reinsurance L&H required risk capital increased: Strong portfolio growth (up from 26% to 32% of reinsurance GWPs)
- Reinsurance segment diversification benefits improved: Better portfolio mix (P-C and L&H) and reduced dominance of financial market risks
- Primary segment required risk capital increased slightly: Increased primary P-C portfolio and recovered market value of assets

Group available financial resources increased by €1.9bn, while Group required risk capital reduced by €3.1bn
→ Significant improvement (€5.0bn) in economic financial strength

[1] y/y: 1.1.2004 to 1.1.2005

Available financial resources and required risk capital

Summary of economic capital disclosure

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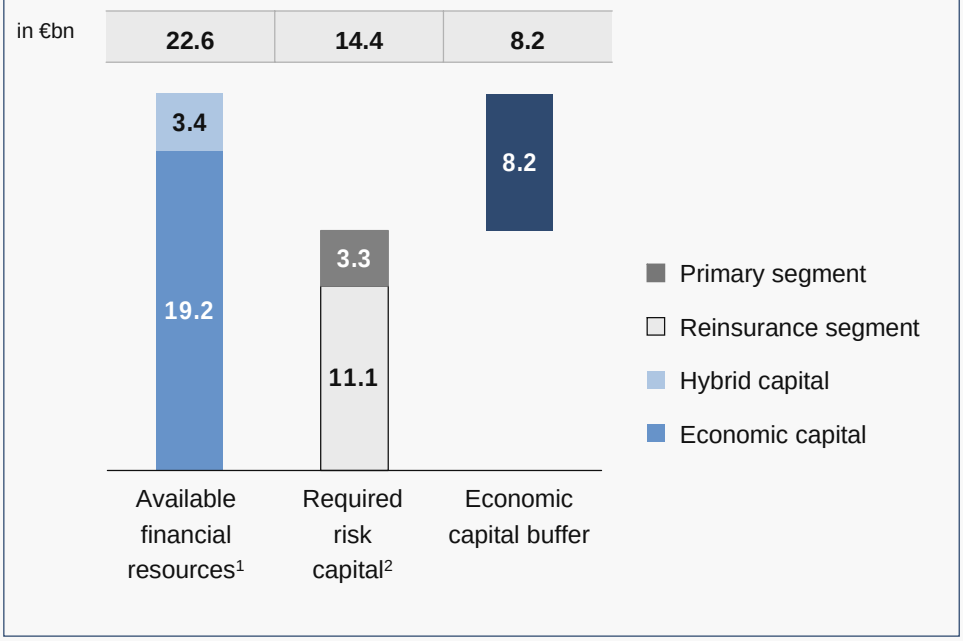
Position as at 1 January 2005



[1] Sum of economic capital and hybrid capital.
[2] Based on requirements of internal risk model, calibrated to withstand two 1 in 100 year losses; equivalent to an economic probability of default in the AA to AAA range.

Stress testing of capital position – Shows resilience of Munich Re Group capital adequacy

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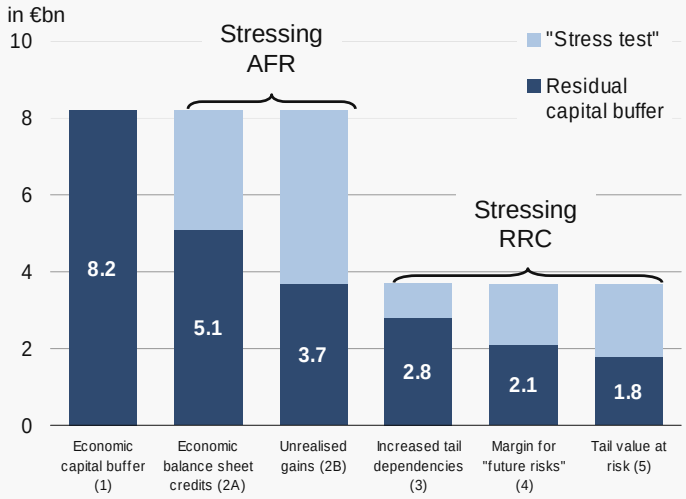
Position as at 1 January 2005



Notes:

1) Excess of available financial resources (AFR) over required risk capital (RRC) on internal model
2) Economic capital buffer less credits for discounting of P-C reserves and embedded value not recognised in IFRS equity (2A) or less shareholder's share of unrealised gains on balance sheet (2B)
3) Allowance for increased interconnectedness of risks in extreme loss scenarios
4) Allowance for additional risk capital charge for uncertainty from P-C reinsurance segment beyond the current calendar year's requirements
5) Estimate for the Group, based on increase of tail value at risk capital requirements relative to value at risk capital requirements for the P-C reinsurance segment

Stress tests applied

Munich Re Group's excellent economic capital position resilient to major stress tests

Regulatory and rating agency target capital requirements: Important constraints

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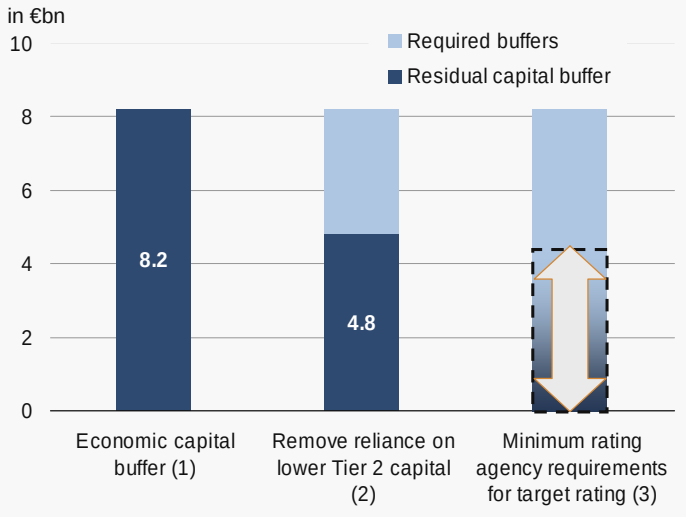
Position as at 1 January 2005



Notes:

1) Excess of available financial resources over required risk capital on internal model
2) Base-case economic capital buffer (1) less hybrid equity which qualifies as lower Tier 2 capital under some regulatory regimes (and hence subject to solvency capital admissibility constraints)
3) Represents overall effect of difference between internal model and rating-agency measures of capital adequacy for target rating (AA range)

Represents differences in approaches between the various rating agencies – Some of these can only be assessed qualitatively

Limited quantitative recognition of diversification represents a significant barrier to aligning capital position to the pure economic view

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Portfolio diversification benefits

Munich Re Group strategy based on active steering of portfolio diversification benefits

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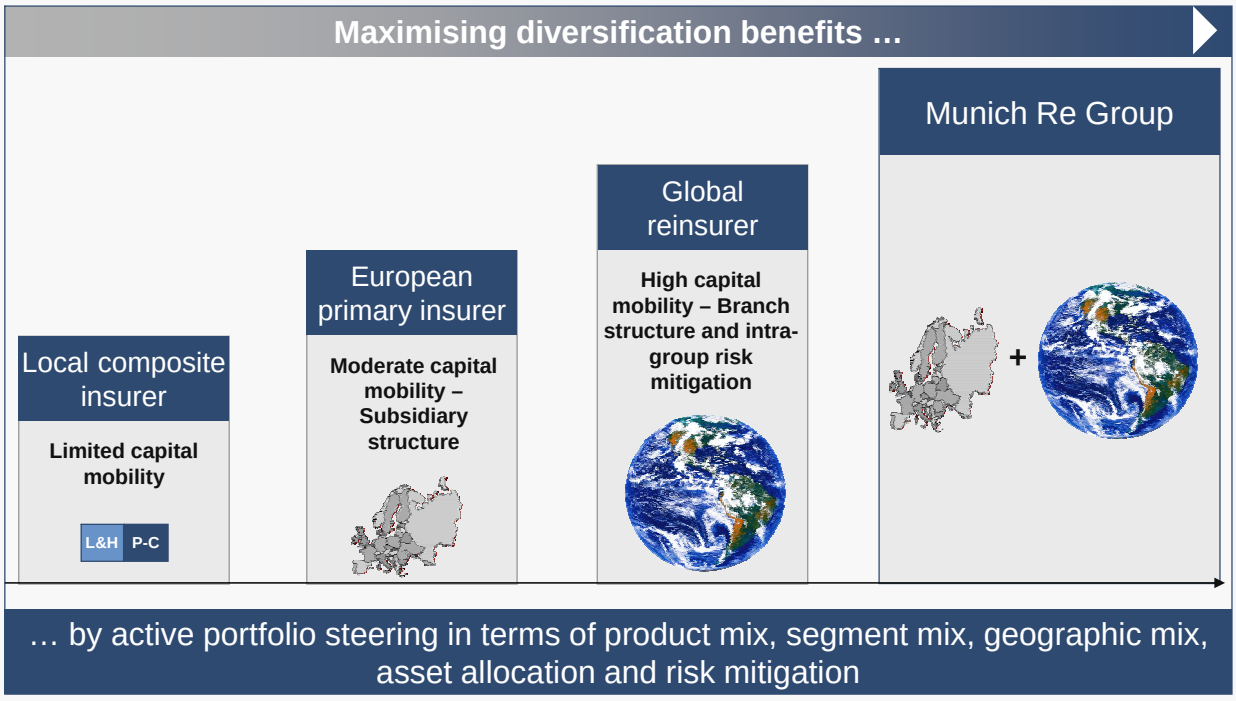

Example:
Improved portfolio diversification in P-C reinsurance

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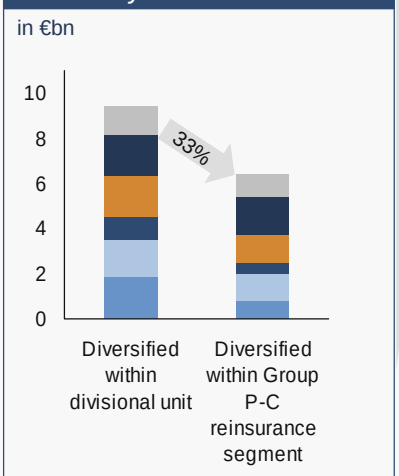
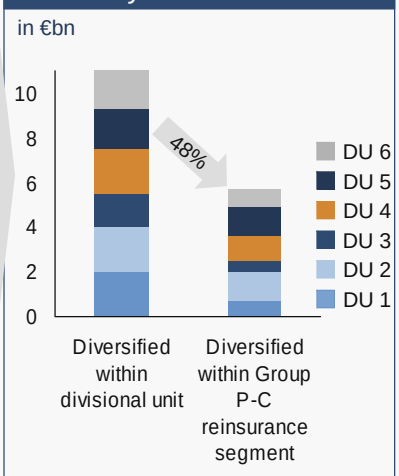
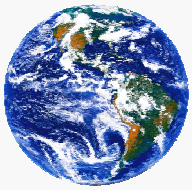
Maximising diversification benefits …

P-C reinsurance portfolio diversification benefits 1 January 2004



P-C reinsurance portfolio diversification benefits 1 January 2005





The three Divisional Units (DU) with the strongest contributions to portfolio diversification benefits (Divisional Units 1,3 and 6) made up a greater share of the Group P-C reinsurance segment as at 1 January 2005

Significantly enhancing the P-C reinsurance segment's overall level of diversification

Spotlight on portfolio diversification in P-C reinsurance – Global pooling of NatCat risks

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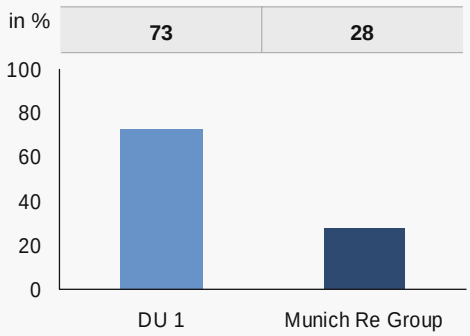
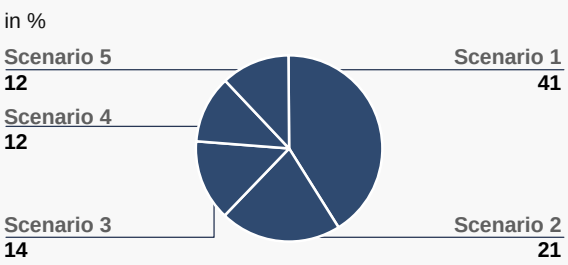
– ILLUSTRATION OF KEY DETERMINANTS OF DU 1's CONTRIBUTION TO GROUP DIVERSIFICATION –

P-C reinsurance risk-based capital required for NatCat risks (% of total P-C RBC)



Composition of top five Munich Re Group NatCat risks (based on gross 1 in 100 year losses)



Divisional Unit 1 writes very little business that contributes to loss scenarios 1 and 2

Divisional Unit 1 writes a relatively large volume of NatCat business, the bulk of which helps to better diversify the global Group NatCat portfolio

Portfolio diversification benefits

More conservative approach taken to diversification in global life and health reinsurance portfolio

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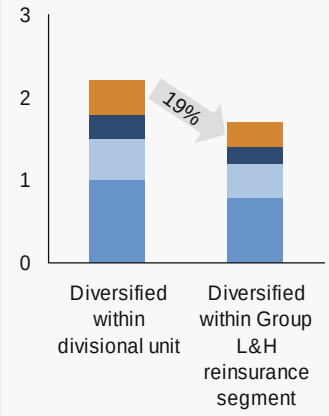
Maximising diversification benefits …

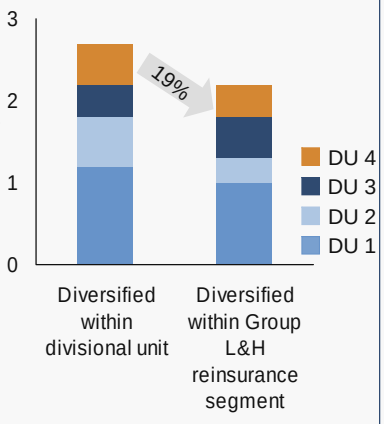
Life and health reinsurance portfolio diversification benefits 1.1.2004

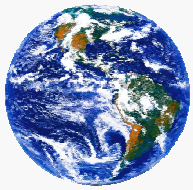
in €bn



Life and health reinsurance portfolio diversification benefits 1.1.2005

in €bn





- Portfolio diversification benefits within L&H RI less pronounced: Worldwide positive correlation of mortality risks
- Growth in L&H RI portfolio: A major contributor to the reinsurance segment's overall improved level of diversification

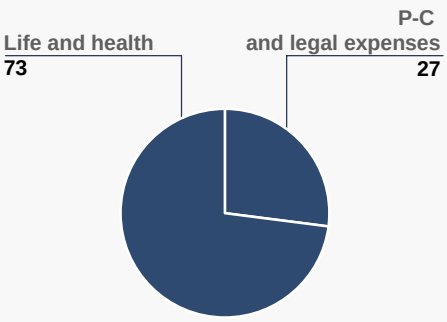
Portfolio diversification benefits

Shareholder risk-based capital deployed in primary life and health segment

Münchener Rück
Munich Re Group

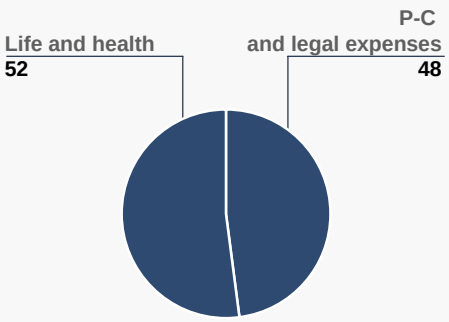
Breakdown of primary segment premium income (CY 2004)

in %



Breakdown of primary segment deployed shareholder risk-based capital[1] (1 January 2005)

in %



Diversification between reinsurance and primary insurance also improved by strong contribution of property-casualty business to deployed primary insurance risk-based capital

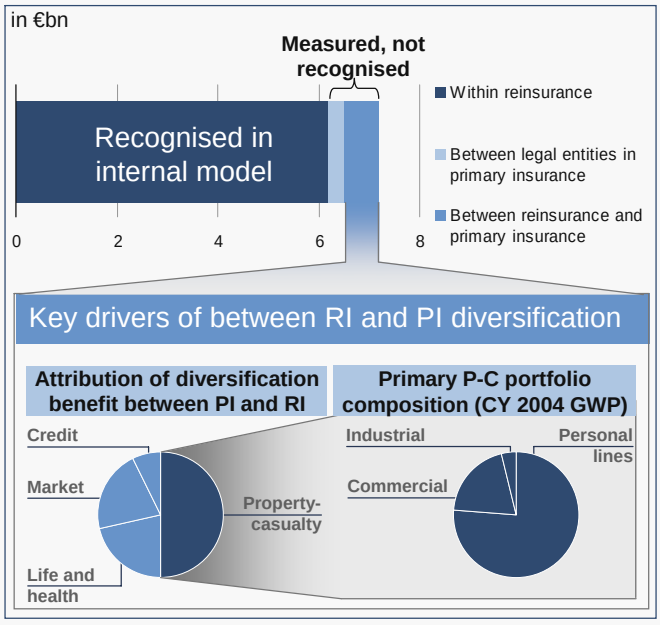
Lower shareholder capital intensity in L&H due to existence of policyholder risk-bearing funds

[1] Includes market and credit risk shareholder RBC deployed in the primary L&H and P-C/legal expenses companies.

Recognition of Group diversification benefits – Conservative approach

Münchener Rück
Munich Re Group

Diversification benefits – Measured vs. recognised in internal model



Notes

- Global reinsurance diversification benefits highly fungible: measured and recognised
- Primary insurance diversification benefits less fungible at present: measured not recognised
- Between primary and reinsurance diversification benefits highly fungible: measured not recognised on account of size of PI (conservative)

Illustrative

Diversification between PI and RI strongest for P-C insurance risks

These benefits are highly fungible on account of existence of intra-Group reinsurance arrangements (respecting solvency admissibility constraints of primary companies)

Personal lines focus of PI P-C further enhances Group diversification benefits

Converging views on the importance of quantitative recognition of diversification benefits

Münchener Rück
Munich Re Group

- Solvency II – Likely to explicitly encourage use of internal models subject to satisfaction of "admissibility tests"
- CRO Forum white paper on diversification (June 2005) proposes a set of core principles and policies to form the basis of a framework for the treatment of diversification and group effects within European insurance regulation
- Very encouraging developments from rating agencies, for example:
  - AM Best (BCAR) methodology already makes quantitative adjustments for diversification – Using a simplified approach
  - Fitch collaboration with Ernst & Young to build a global insurance capital model
  - Moody's MRAC model for US primary P-C insurers (refer white paper of September 2004)
  - S&P's announcement regarding enterprise risk management (refer S&P's press release of 31 May 2005)

Munich Re Group likely to be a major ultimate beneficiary of "convergence"

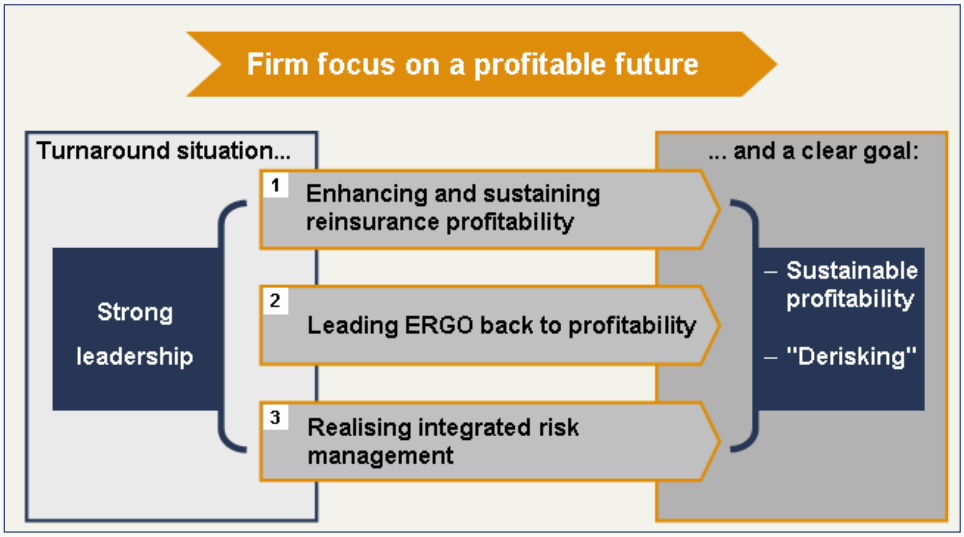
Overview

Münchener Rück
Munich Re Group

Strategic objectives

Risk management: Integral part of CEO's agenda

Münchener Rück
Munich Re Group

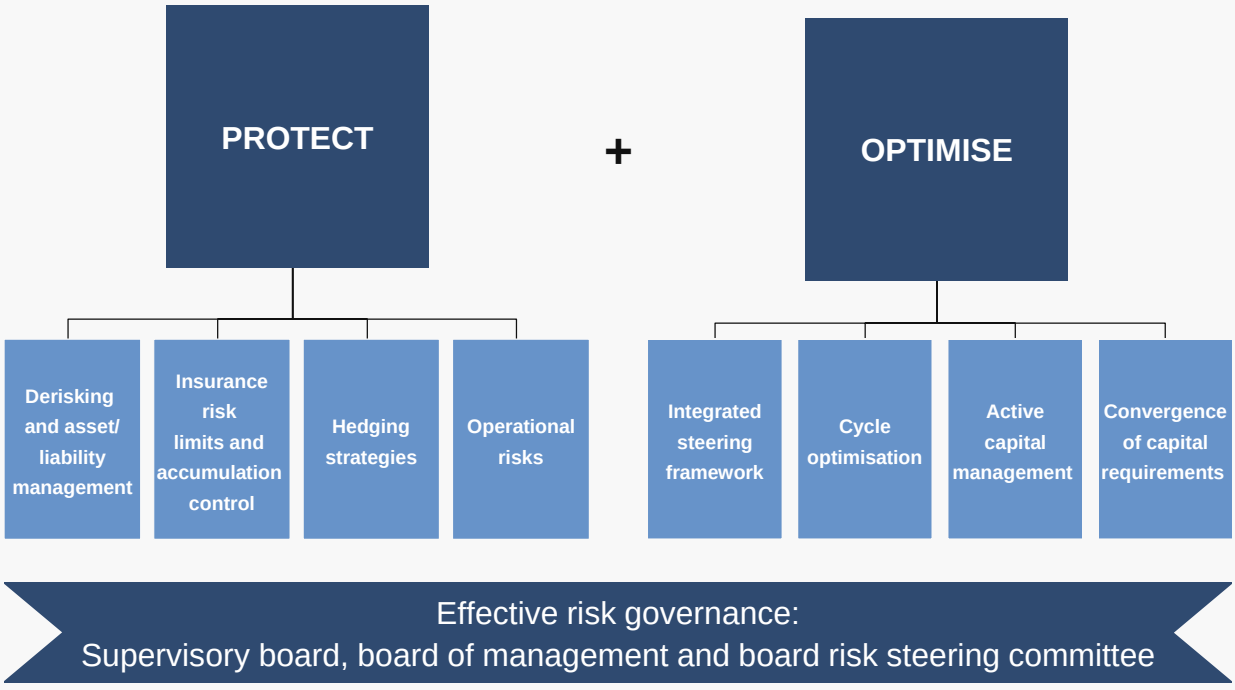


Source: Munich Re CEO's Inaugural Presentation to Analysts, 16 April 2004

Strategic objectives

Integrated risk management in the Munich Re Group: Protecting and optimising the return on shareholder capital

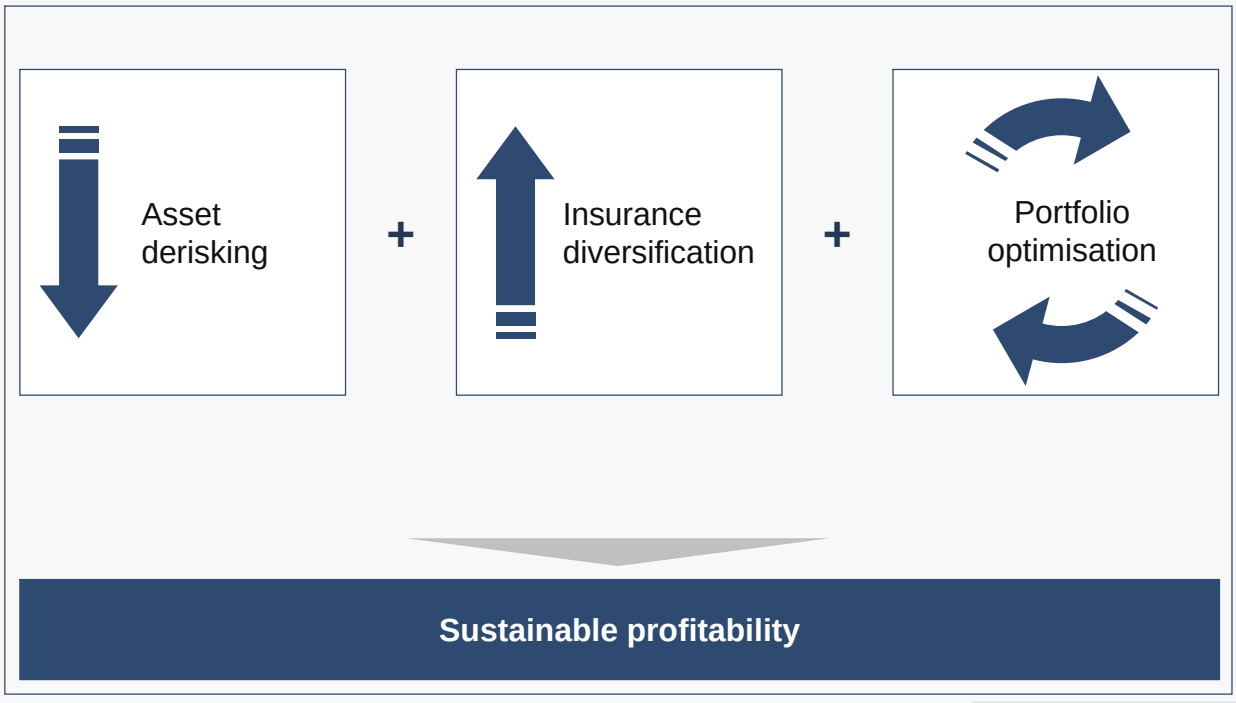
Münchener Rück
Munich Re Group



Effective risk governance:
Supervisory board, board of management and board risk steering committee

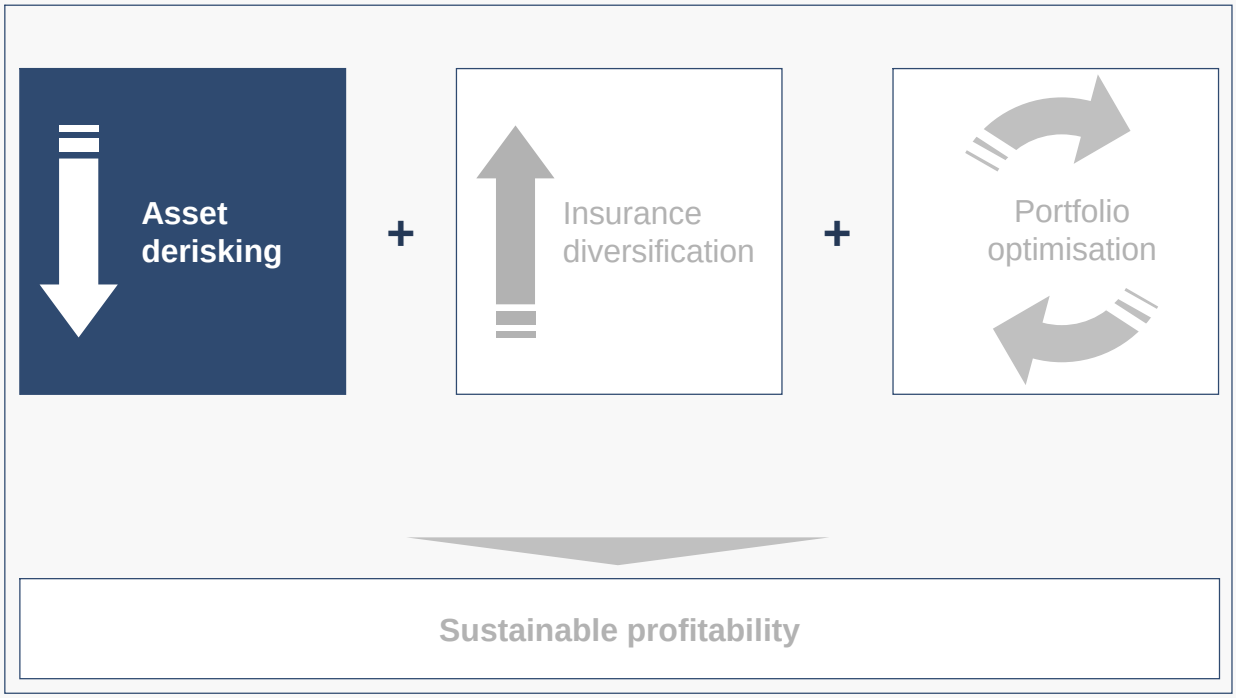
Integrated risk management in the Munich Re Group: Supporting Group strategic objectives

Münchener Rück
Munich Re Group



Integrated risk management in the Munich Re Group: Supporting Group strategic objectives

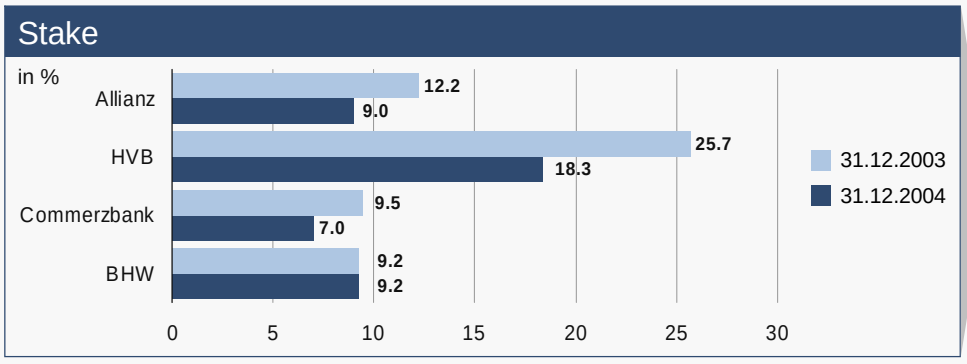
Münchener Rück
Munich Re Group



Asset derisking

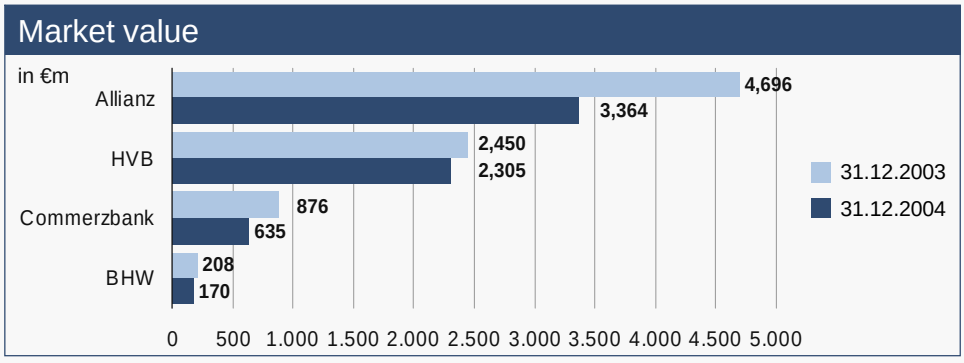
Asset derisking in action
Strongly reduced equity concentrations in German financials

Münchener Rück
Munich Re Group



FLASH UPDATE TO 23 JUNE 2005:

- Allianz stake now < 8%
- Commerzbank stake now < 5%
- BHW stake now 0% (sold in Q1 2005)



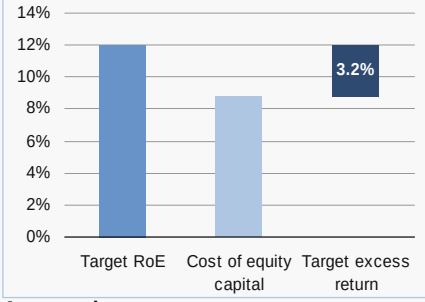
Estimating the size of the prize from derisking of reinsurance segment

Münchener Rück
Munich Re Group

– ILLUSTRATION –

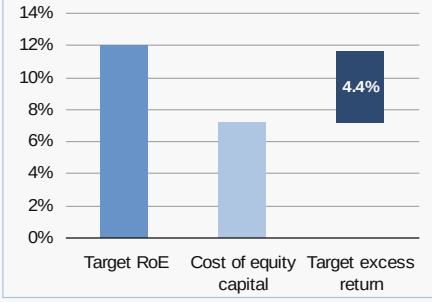
Before derisking

- Current beta of 1.3
- Current cost of equity capital of 8.8%
- Target excess return: 3.2%



After derisking

- Potential beta of 1.0[1]
- Potential cost of equity capital of 7.6%
- Target excess return: 4.4%



For the same target RoE, excess returns (above the cost of capital) increase significantly – More than offsetting any reduction in nominal returns

Assumptions:

- **Risk-free rate of 3.6%, market risk premium of 4.0%**
- **Potential beta supported from analysis of US and Bermudan peer group and Munich Re financial economic research into volatility drivers of Munich Re Group earnings**

[1] Sensitivity: If beta is 0.9, cost of equity capital estimated at 7.2% and target excess return becomes 4.8%.

How will we get there? – Optimising portfolio risk-adjusted returns through "best of breed" ALM

Münchener Rück
Munich Re Group

Munich Re Group

Asset-liability management

Deep under-standing of our liabilities –

Their links to economic indicators

Skill mix

- **P-C actuaries**
- **L&H actuaries**
- **Underwriting/ claims**

The key linkages

- Interest rates
- Inflation (retail, medical, wages, etc.)
- Economic growth
- Credit cycles

Deep under-standing of investment universe –

Ability to replicate insurance liability profiles

Skill mix

- **Financial analysts**
- **Financial engineers**
- **Portfolio management**

Liability-driven investment respecting the characteristics of insurance liabilities (timing and level of uncertainty)

Asset derisking

We have overhauled our ALM processes and adopted a holistic risk governance process spanning each component of ALM risk

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ALM GOVERNANCE

Components	LIABILITIES	REPLICATING PORTFOLIO	STRATEGIC ASSET ALLOCATION	TACTICAL ASSET ALLOCATION	ASSETS
Description	Stochastic representation of cash flows associated with both primary insurance and reinsurance obligations on a class of business	Portfolio of assets that most closely matches the risk characteristics associated with the stochastic representation of the liabilities	Asset allocation targets that provide optimal level of return given the predetermined appetite of Board and other investment constraints, as dictated by external stakeholders (e.g. regulators, rating agencies)	Asset allocation targets that are selected by the asset manager to optimise return within given investment and risk constraints	The risks and cash flows associated with the actual assets invested by the asset manager – monitored and controlled in front and back office systems

Components strengthened since 2004

State-of-the-art processes already in place before 2004

Asset derisking

Illustration: Understanding the impact of inflation on our assets and liabilities in P-C reinsurance

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Segment	Source of inflation
Fire XL and proportional	Construction cost, business interruption
Motor proportional	Bodily injury, auto physical damage repair cost
Motor XL	Bodily injury
General liability proportional	Personal property damage (general CPI), bodily injury, changes in tort costs, damage awards
General liability XL	Bodily injury, leveraged effect of tort costs
Workers comp.	Medical costs, wage levels

XL = Excess of loss.

Inflation-linked bonds, commodities and other asset classes can provide a hedge against inflation

Assets outperform when liabilities underperform expectations

Example: Commodities suitable for the replicating portfolio of property-casualty liabilities?

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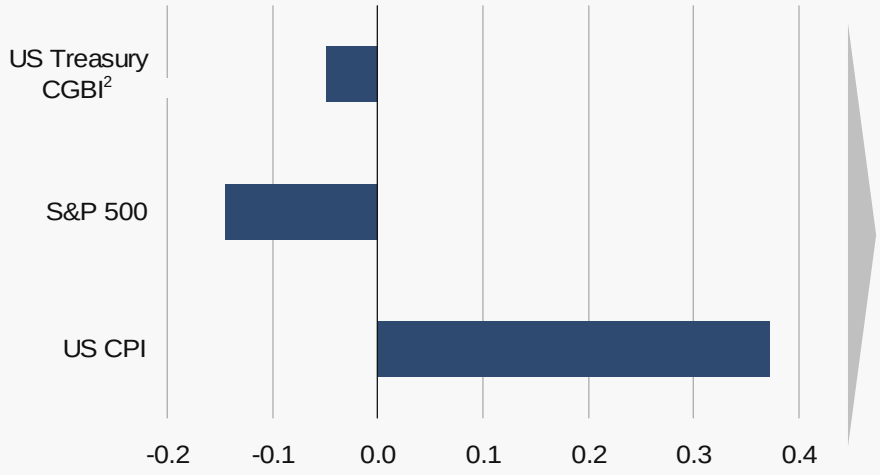
Correlation of GSCI[1] to bonds, equities and inflation (Q/Q: Q2 1985 – Q2 2005)



- Positive correlation to inflation and negative correlation to bonds and equities
- Ideal component asset class for long-tail lines?

Source: Munich Re IRM analysis, datastream
[1] Goldman Sachs Commodities Index
[2] Citigroup Bond Index

German primary life – Finding the right balance between maximising franchise value and protecting equity capital

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Munich Re Group

Protecting equity capital

Close the duration gap (invest long-term) as interest rates fall

Invest short-term to meet policyholder expectations as interest rates rise

Maximising franchise value

Importance of convexity in German primary life means hedging strategies cannot simply focus on duration extension

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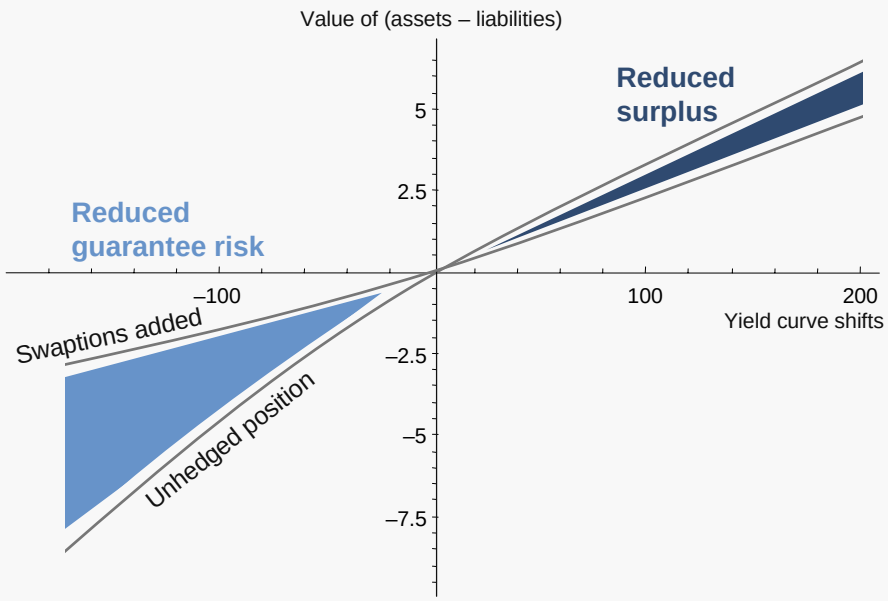
Munich Re Group

– ILLUSTRATION –



- Guarantee risk can be addressed by duration extension but not the risk of not satisfying PREs

Increased lapse risks

- Receiver swaptions can assist in managing both guarantee risks and PREs
- Options add the needed convexity to the A/L position

PREs: Policyholder reasonable expectations

Integrated risk management in the Munich Re Group: Supporting Group strategic objectives

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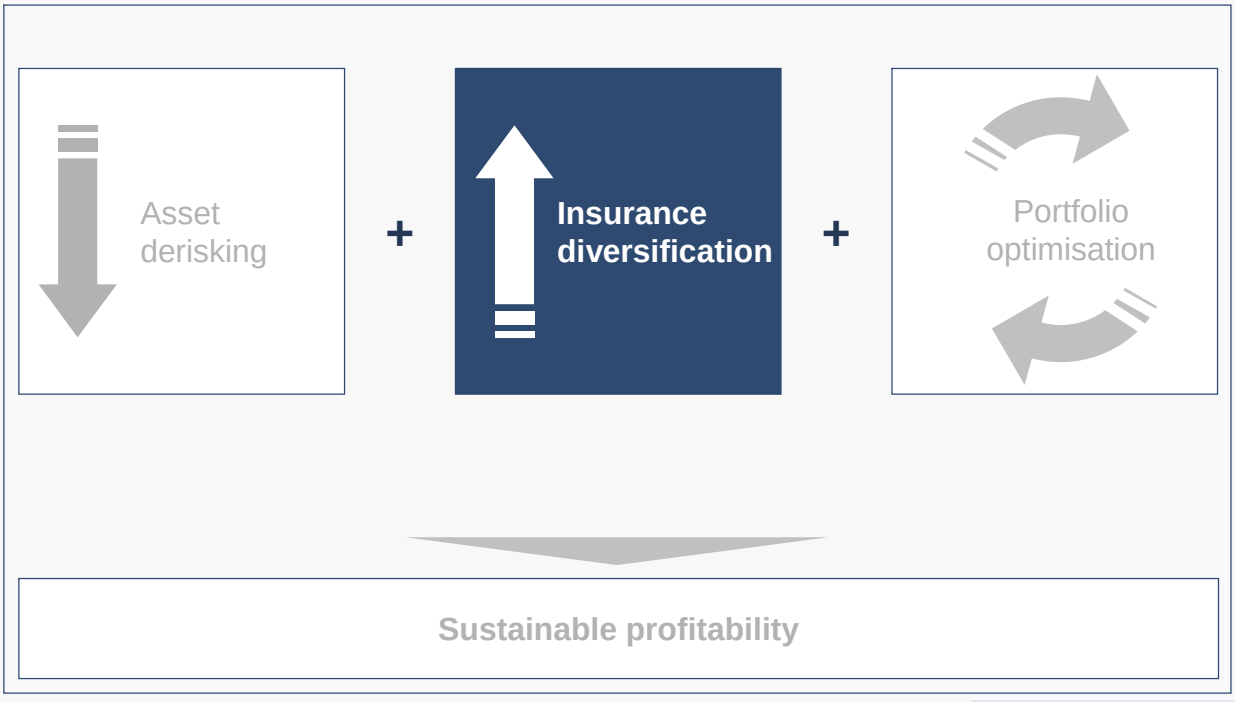
Munich Re Group



Insurance diversification

The Munich Re Group
Turning risk into value

Münchener Rück
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Insurance diversification

Accumulation control safeguards diversification benefits

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Toolbox

- Risk assessment and technical underwriting
- Framework of underwriting controls
  - Limits
  - Guidelines, centres of competence/innovation teams
  - Accumulation control
- Insurance-related trend monitoring
- Knowledge management

Insurance diversification

Interconnectedness of risks prevalent in a multi-dimensional form

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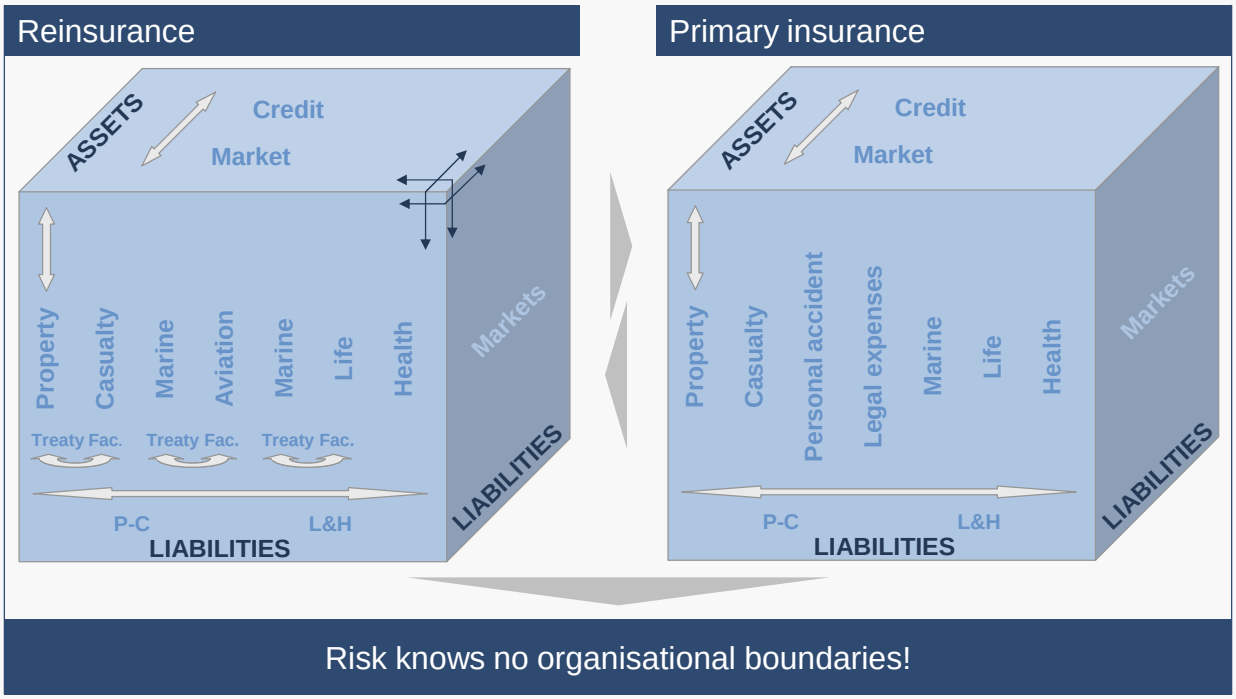
Munich Re Group



Risk knows no organisational boundaries!

Insurance diversification

Munich Re has state-of-the-art tools and processes to safeguard controlled insurance risk taking

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Munich Re Group

Underwriting Control is exercised through

Limits

through tiered underwriting limits set by Board of Management

- Management level 1
- Management level 2
- Senior underwriter
- Underwriter
- UW assistant

Scope

through U/W guidelines and special responsibilities

- Mandatory
- Divisional
- Optional

COCs and IS teams[1]

Accumulation control

through prescribed processes

- Single risks
- Events
- Cross balance sheet

[1] Centres of competence and innovative solutions teams:

Example I: State-of-the-art control of natural catastrophe accumulation risks

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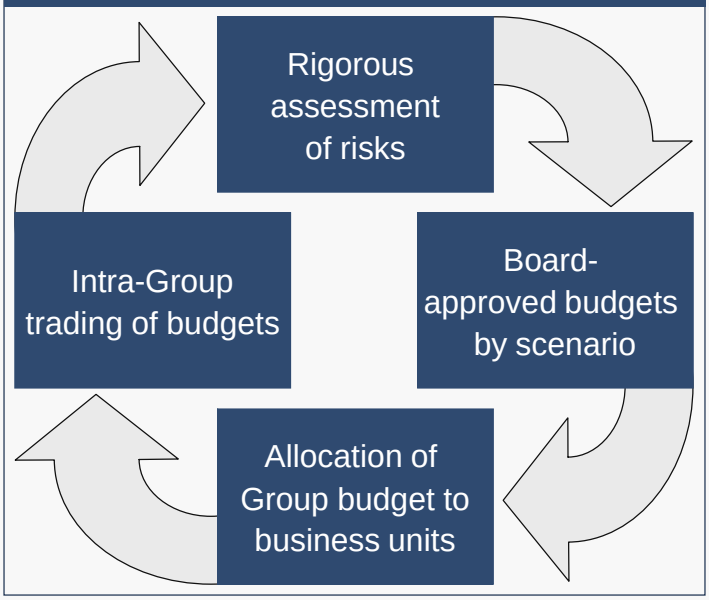
Top ten scenarios as at 1.1.2005 (by 1 in 1000 Year PML)

Munich Re Group scenarios[1]

- Cyclone Australia (Brisbane)
- Earthquake Australia (Sydney)
- Earthquake Israel/Jordan
- Earthquake Japan
- Earthquake USA (Los Angeles)
- Earthquake USA (Midwest)
- Earthquake USA (San Francisco)
- Earthquake Portugal
- Hurricane USA (SE) / Caribbean
- Storm Europe

Strict Group-wide accumulation control processes



[1] In alphabetical order.

NatCat risks
Leveraging our expertise to exploit future opportunities

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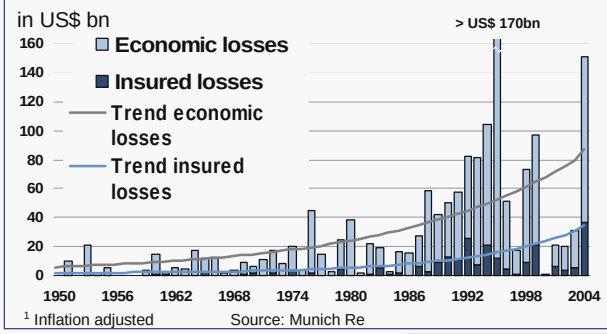
Great natural disasters[1]



[1] Inflation adjusted Source: Munich Re

- Increased frequency and severity of great natural disasters
- Warmer global climate increases probability of weather-related catastrophes
- Rising concentration of insured values

Munich Re's competitive advantage

State-of-the-art scientific data base: MR NatCat *SERVICE* → Evaluation of NatCat by MR Geo Risks Research → Modelling of storms, earthquakes, flooding → Benchmarking of models with external data

Selective underwriting

Higher transparency of risks → Higher attachment points and reduced limits

Leveraging our strengths for sustainable profitability

Geo Risks Research Department – Main tasks

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Munich Re Group

Consulting Munich Re executives, underwriters and clients regarding natural perils

- Estimation of loss potentials (return periods, probable maximum loss)
- Hazard and risk assessment (risk prices)

Development of service tools (internal and external clients)

- Image and cartographic service products (CD-ROM World of Natural Hazards; circulation 100,000!)
- NATHAN (NATural Hazards Assessment Network)
- NatCatSERVICE (Natural disaster database)
- CatPMLSERVICE
- MRHazard (earthquake, wind, flooding, risk modelling software)
- FREAQS (Underwriting system for facultative risks)

Feedback and knowledge transfer

- Seminars, presentations, publications

Geo Risks Research Department consists of 25 employees with high expertise in

- Earthquake
- Flooding
- Windstorm
- General weather
- Climate

and is therefore a market leader in the scientific community

Example II: Case study on accumulation of active pharmaceutical ingredients

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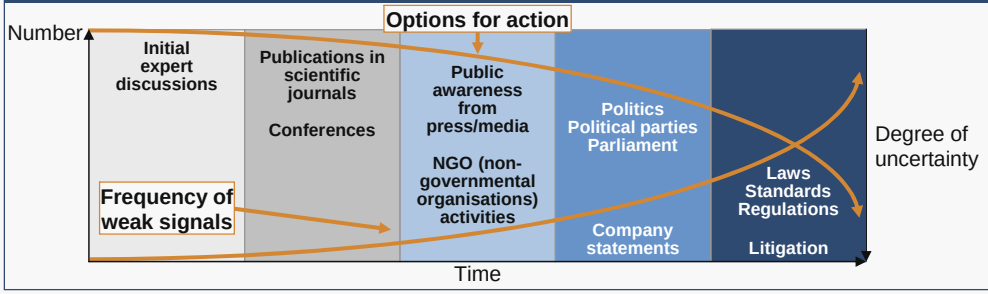
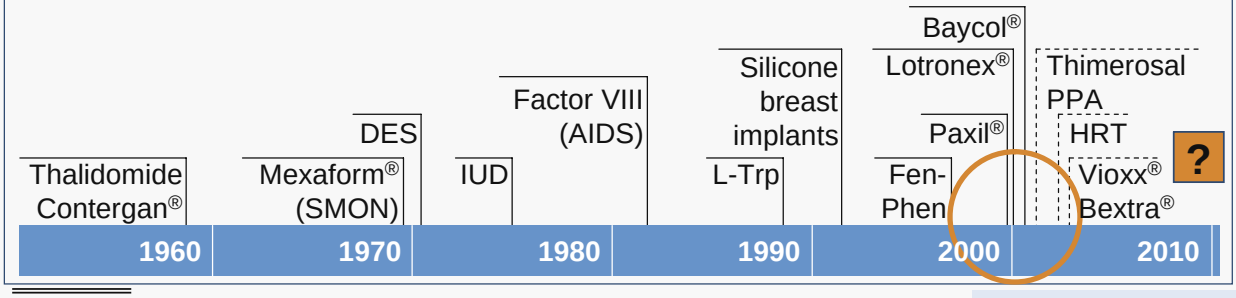
Early warning provides more options to act



Combating the increasing frequency of large pharmaceutical claims



Illustrative

Active pharmaceutical ingredients: Accumulation control focuses on managing risks from three key scenarios

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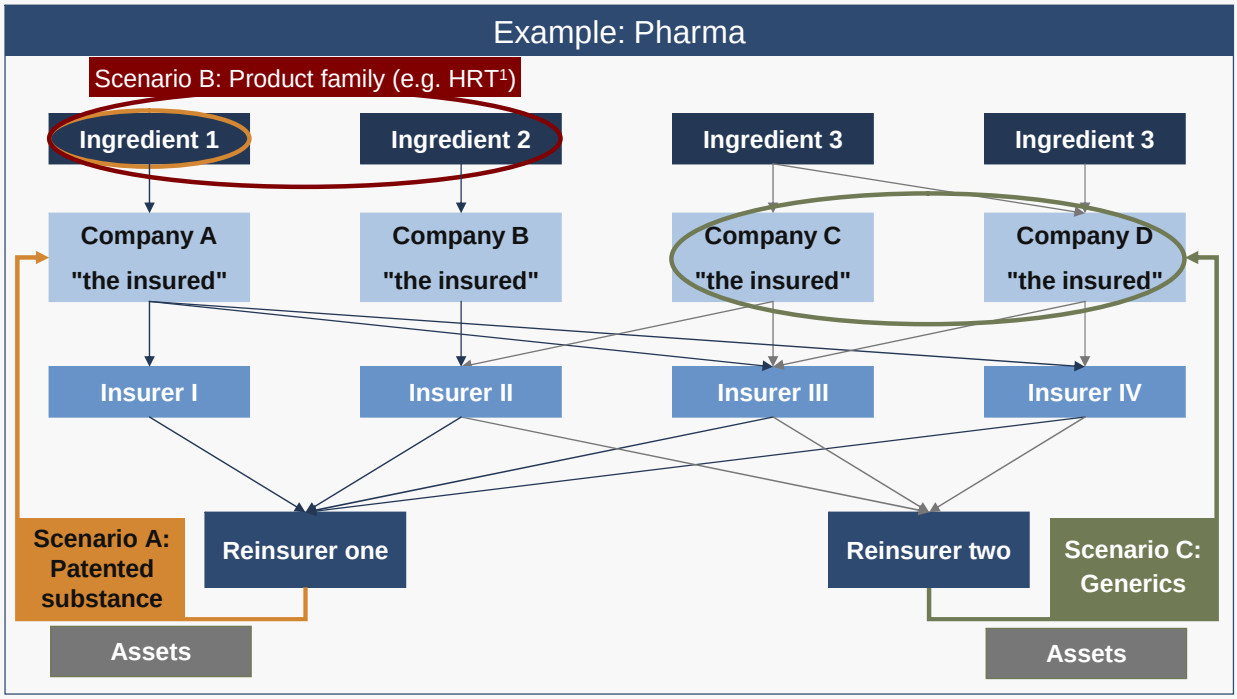

[1] Hormone replacement therapy.

Case study: HRT – Holistic assessment of Munich Re Group exposure

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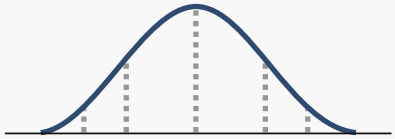
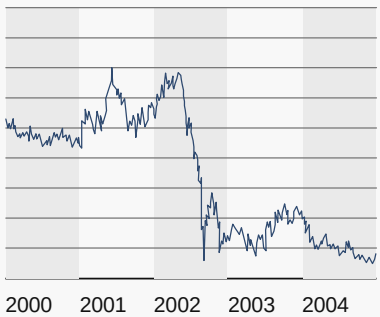
Munich Re Group

Develop loss scenarios	Assess MR ins. coverage	Link to investments
Calculate estimate based on scientific studies and on results of historical loss analysis (e.g. distribution of amount of compensation)	Munich Re exposure in case of total loss for HRT products manufacturing companies monitored and controlled on account of key signals:	Incorporate potential losses from direct/indirect investments in affected companies



- Breast cancer risk suspected since the eighties
- WHI study (USA, July 2002) hinted at significant breast cancer risk
- Million women study (UK, Aug. 2003) confirms significant breast cancer risk for long-term use



Illustrative

Scenario building requires a multi-disciplinary approach – Scientific, legal, actuarial, finance, claims and underwriting

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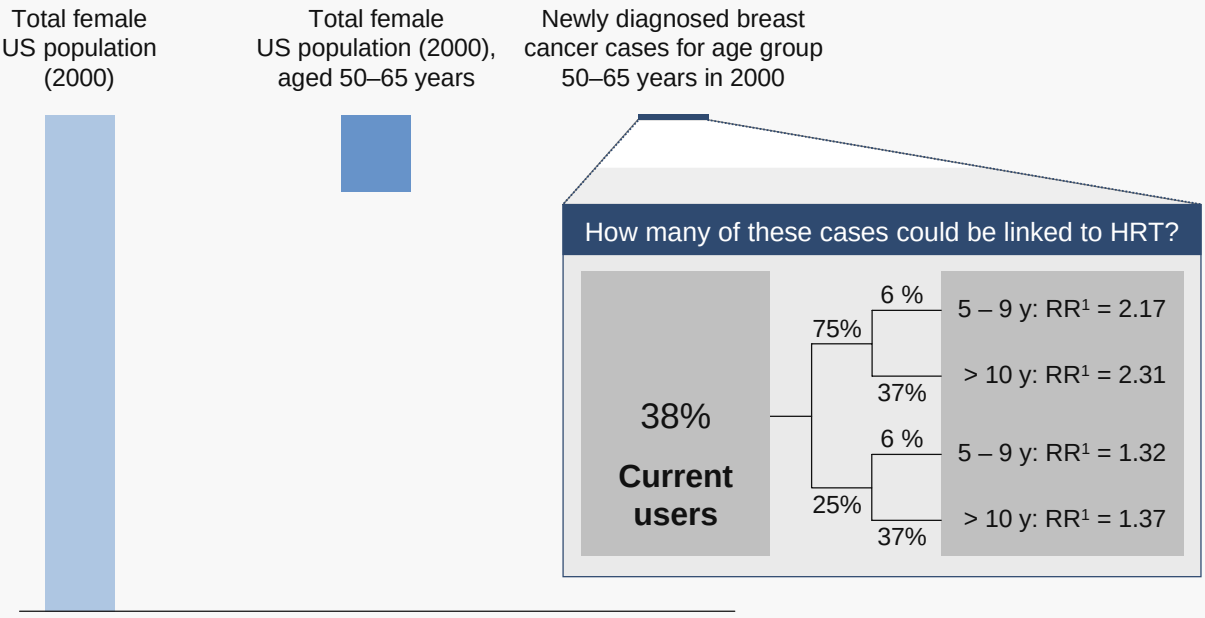
Illustration of factors considered in scenario building for HRT



[1] RR: Relative risk

Munich Re
Decisive steps taken to manage our Group exposures

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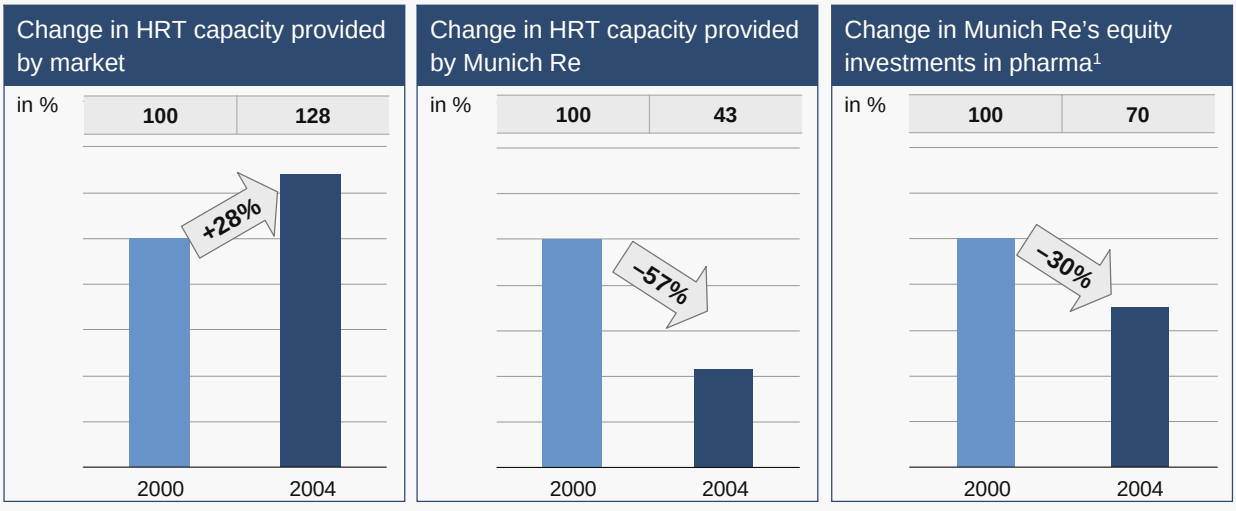

Significant reduction of both equity investments and capacity made available to the market for HRT companies over time through tighter terms and conditions and active steering of the portfolio

[1] Expressed as a percentage of reinsurance segment assets by market value. In 2004 pharma equity investments represented less than 1% of the market value of reinsurance segment assets.

Accumulation control at several levels … Corporate underwriting and integrated risk management working hand in hand

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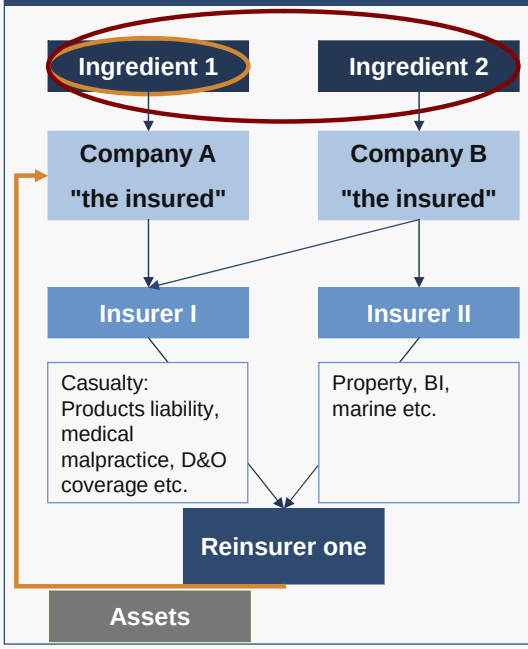
Pharma accumulation risk



Level of accumulation	Controls
Product/Substance	▪ Critical products and product families identified ▪ Pharma database ▪ U/W guidelines
Company ("the insured"), whole industry branch	▪ Single-risk accumulation control (treaty and fac.) ▪ Risk analysis of individual companies
Primary insurer(s)	▪ Single-risk accumulation control (treaty and fac.) ▪ Accumulation control for Fortune 500 companies ▪ Underwriting audits
Across several lines of business	▪ Accumulation control for Fortune 500 companies ▪ Scenarios
Assets	▪ Sophisticated limit system incl. credit insurance ▪ Global Risk Steering Committee ▪ Scenarios

Identifying major drivers for liability developments – A robust basis for monitoring emerging risks

Münchener Rück
Munich Re Group

The risk of liability developments[1]

Potential fields of impact

Segment	Source of inflation
Motor proportional	**Bodily injury**, auto physical damage repair cost
Motor XL	**Bodily injury**
General liability proportional	Personal property damage (general CPI), **bodily injury**, **changes in tort costs, damage awards**
General liability XL	**Bodily injury**, **leveraged effect of tort costs**
Workers comp.	**Medical costs**, wage levels

Illustrative

[1] Based on the ideas of Tom Baker, Director of the Insurance Law Centre of the University of Connecticut, published in the Geneva Papers, January 2004.

Risk and knowledge complement each other: Munich Re's competitive advantage

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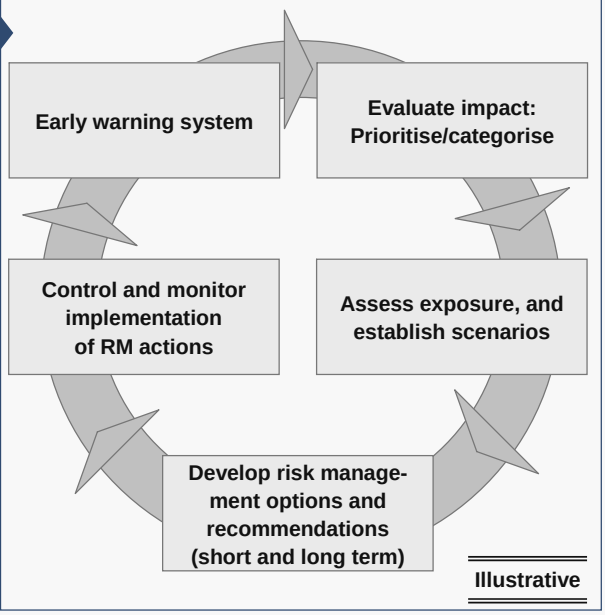
Munich Re Group

Knowledge platform

- ClaimsNet
- ShareLife
- HealthShare
- Special topics
- Markets
- Controlling Net
- CasualtyNet
- PropertyNet
- MariNet
- Construction/PI technical profession
- Autonet
- Environmental liability
- IT liability
- Products liability and recall
- Nanotechnology
- Toxic Mould
- Functional Food
- GMOs

Risk management



Illustrative

Example III: Munich Re active interchange between actuarial and medical research in RI & PI

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Munich Re Group

Actuarial research

Munich Re and ERGO participate in the various working parties of actuarial bodies, amongst others:

- DAV working group Biometrische Rechnungsgrundlagen, Chair (Germany)
- CIA Expected Experience Committee, chair (Canada)
- SOA working group "Search for Predictors of Exceptional Longevity" (USA)
- "Longevity working party" that presented the "Longevity in the 21st century" paper to the Faculty of Actuaries and the Institute of Actuaries (UK)
- Institute and Faculty of Actuaries: Actuaries panel on medical advances (UK)

Medical research

Research on (bio)medical developments relevant to life and health insurance (e.g. diagnostic, therapeutic, morbidity and mortality trends, longevity, screening)

- Munich Re Centre of Competence for Biosciences
- Exchange with universities, pharmaceutical industry and research institutes (e.g. Max Planck Institute)
- GDV task force on genetic tests and life insurance (chair)
- GDV task force on genetic engineering
- Chief medical director is member of AAIM (USA), AMS (UK) and German representative on ICLAM (international)

DAV: Deutsche Aktuarvereinigung; CIA: Canadian Institute of Actuaries; SOA: Society of Actuaries; GDV: Gesamtverband der dt. Versicherung; AAIM: American Academy of Insurance Medicine; AMS: Assurance Medical Society; ICLAM: International Congress for Life and Helath insurance Medicine

Insurance diversification

Should our capital and risk management strategy be geared to management of mortality shock scenarios only?

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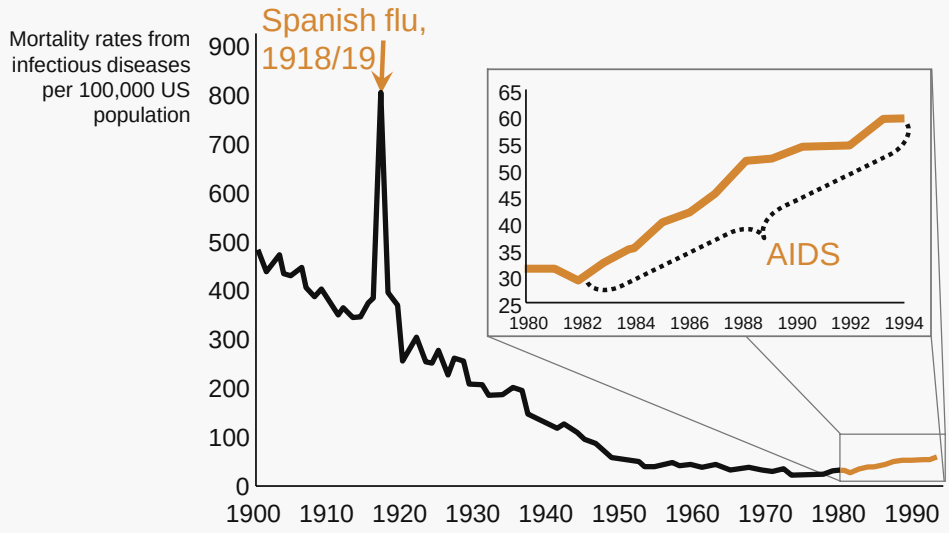

Munich Re risk management focused on mortality shock *and* trend risks

Source: Preventing Emerging Infectious Diseases – A Strategy for the 21st Century, CDC

Insurance diversification

Mortality shock scenarios thoroughly investigated Example: Shocks due to flu epidemics

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Factors reducing influenza mortality (+)	Factors increasing influenza mortality (–)
Improvement in medical care and technology: Vaccines, anti-viral drugs	New strains with increased mortality (e.g. high contagiousness)
Global surveillance, e.g. by WHO, CDC	Global air travel
Crisis/emergency preparedness plans, e.g. close-down of central airport hubs (models) and/or mass vaccination	"Megacities" / Areas with high population density
Self-limiting nature of most flu epidemics	Vaccine/drug shortage
Improved socio-economic environment incl. hygienic conditions	

Nowadays, epidemics are much better controlled and can be treated so that excessive death tolls have a lower likelihood

Mortality trends thoroughly investigated

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Factors decreasing mortality rates +	Factors increasing mortality rates −
Medical progress, e.g. "personalised medicines" (genetics), eradication of specific infectious diseases, new treatment options and/or procedures, "cancer cure"	Lifestyle factors: Smoking, drugs, alcohol, lack of physical activity, unbalanced diet
Healthy lifestyle incl. exercise and nutrition	Risk factors: High cholesterol, high blood pressure, obesity, diabetes
Safety research (e.g. car seat belts, automated process control)	Wide-spread diseases: Cardiovascular diseases, cancer
Improved hygienic conditions and safer environment	New pathogens

Mortality trends – The life expectancy of newborns in Germany has consistently improved over the past century

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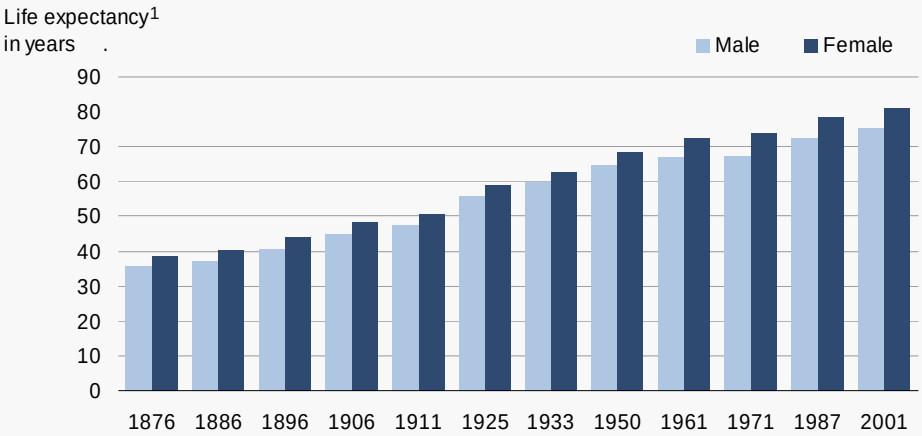

Our best estimate is a continuation of the overall trend, notwithstanding the influence of factors increasing mortality rates

[1] Derived from German population mortality tables (ADSt series for 1876 to 1987) and the abbreviated table of 2001, as provided by the Statistisches Bundesamt, Wiesbaden. Please note the x-axis is not equidistant, as only ADSt series mortality tables were used.

Insurance diversification

The importance of aligning capital management strategies to a robust analysis of risk characteristics

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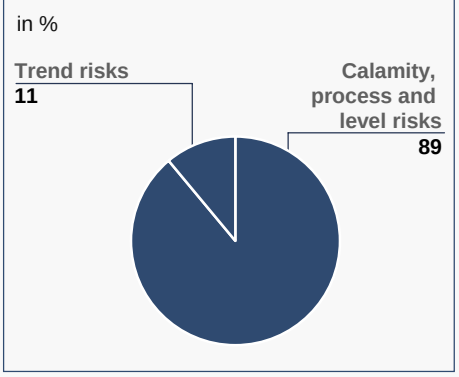
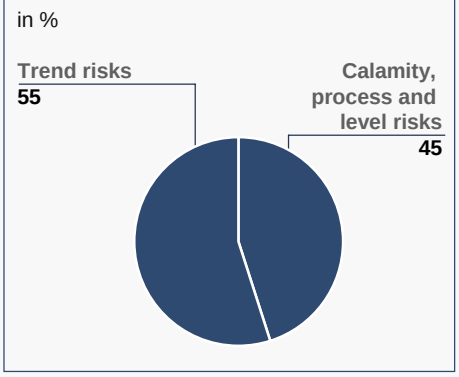
– ILLUSTRATION FOR LIFE RE BUSINESS PORTFOLIO –

One-year time horizon
Components of mortality risks (stand-alone mortality risk capital)



25-year time horizon
Components of mortality risks (stand-alone mortality risk capital)



Capital and risk management strategies should be tailored to the characteristics of the business – Calamity effects less dominant on longer-time horizon

Insurance diversification

Exposure to longevity risk in primary life – Quantified and controlled

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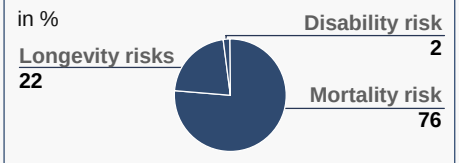
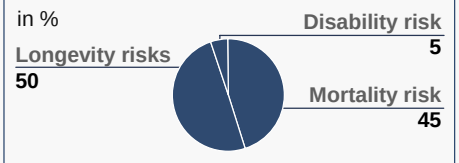
– ILLUSTRATION FOR PRIMARY LIFE BUSINESS –

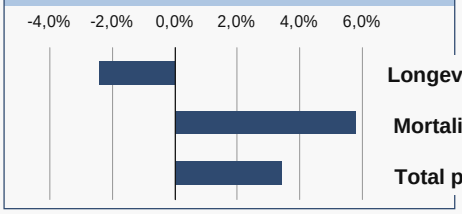
Portfolio today
Contribution to value in force (VIF) – From business subject to



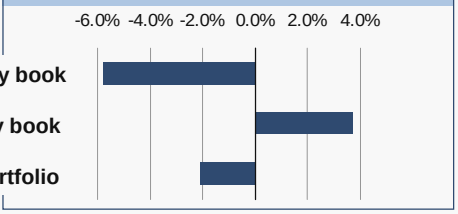
Hypothetical portfolio in ten years
Contribution to value in force (VIF) – From business subject to



Impact on VIF from adverse longevity trend scenario
(base case trend increased by 50%)



Impact on VIF from adverse longevity trend scenario
(base case trend increased by 50%)



Impacts are strongly offset by primary portfolio subject to mortality risk

Longevity risk readily digested in primary life – Abundant management options (bonus policy, product design) to control the risk

Adverse longevity risk scenario in primary life would be swamped by windfall profits from the life reinsurance segment

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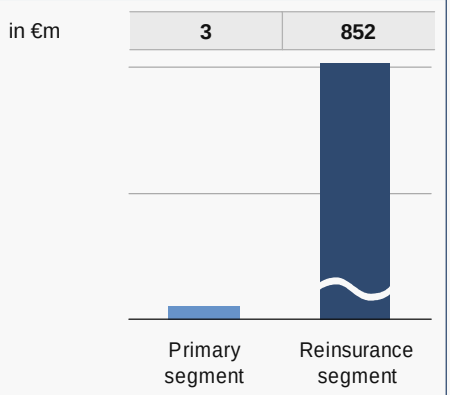
Embedded value mortality sensitivities for Munich Re's primary and reinsurance business at 31.12.2004

Embedded value sensitivity: Mortality –10%



- Reinsurance business is far more sensitive to mortality changes than the primary business
- In the reinsurance segment, higher-than-expected mortality improvements will provide MRG with substantial windfall profits
- These profits would swamp any primary insurance losses from its longevity book that may arise if the PI L&H book is dominated by business subject to longevity risks
- Management actions (bonus policy, product design) can also be deployed to steer longevity risk in PI

Although annuitants expected to experience stronger mortality improvements than insured lives, positive factors for insured lives are significant (e.g. medical advances, improved nutrition and prevention programmes)

A small improvement in mortality for insured lives has a very large positive impact on the MRG portfolio

Providing evidence of our strong Group diversification benefits

Integrated risk management in the Munich Re Group: Supporting Group strategic objectives

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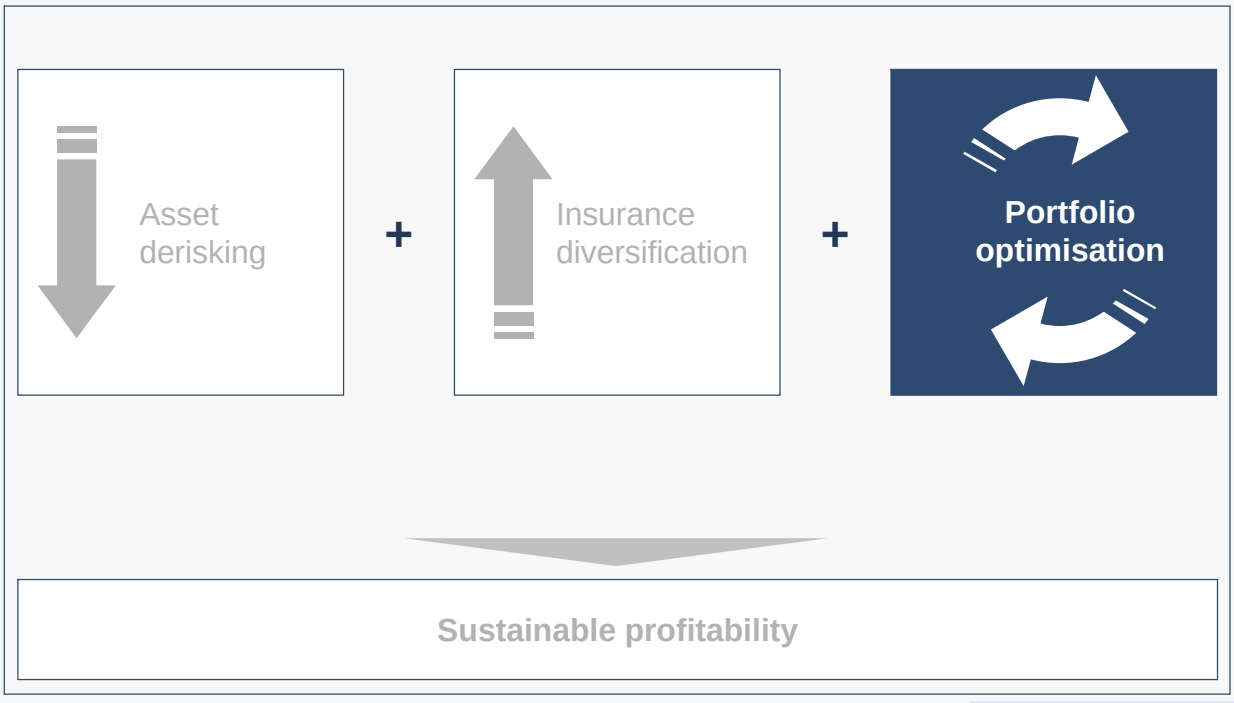

Integrated risk management: Developing tools to optimise portfolio profitability

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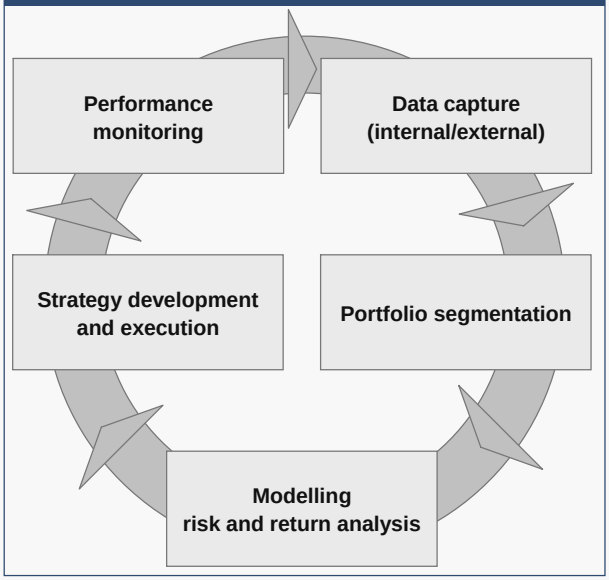
Strategy development

- Evaluate expected performance for each LoB segment using a "cycle sensitivity" analysis[1]
- Deploy forward looking measures to improve performance and reduce volatility
- Add qualitative/strategic factors
- Integrate regulatory, rating agency and economic measures of capital requirements
- Integrate the strategic asset allocation into the capital management process
- Simulate asset and insurance performance in one integrated process

Portfolio optimisation



A robust framework

[1] Measured by underwriting beta derived from Munich Re proprietary model

Case Study I Active management of peak exposures

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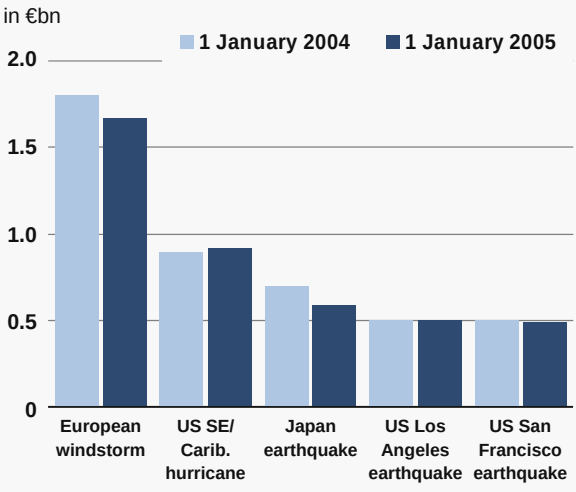
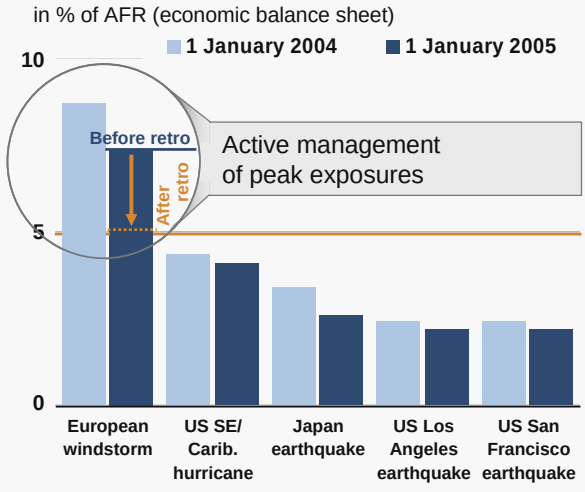
Top five natural catastrophe exposures – Gross estimated hundred-year event losses





Retrocession programme for 2005 significantly reduces peak exposures

Portfolio optimisation

Case Study II: 2005 renewals – Active portfolio management based on strict underwriting discipline

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Renewal strategy	Action	Portfolio outcome

▪ Strong commitment to profitability
▪ Cycle management
▪ Focus on a sustainable improvement of our portfolio
▪ Cancellation of inadequately priced business
	▪ Business cancellations due to inadequate prices in:
	  ▪ Motor Europe and
	  ▪ Workers compensation USA
	▪ New business in China as a result of first-mover advantage
		Cancelled premiums:
		▪ €180m motor
		▪ €120m WC
		▪ US$ 136m casualty RP US
		+ €330m (all lines)

Overall stable business mix with increased intrinsic profitability

Strict adherence to pricing guidelines and improvement of terms and conditions

Portfolio optimisation

Case Study III: Cycle management in P-C reinsurance with XL and proportional covers

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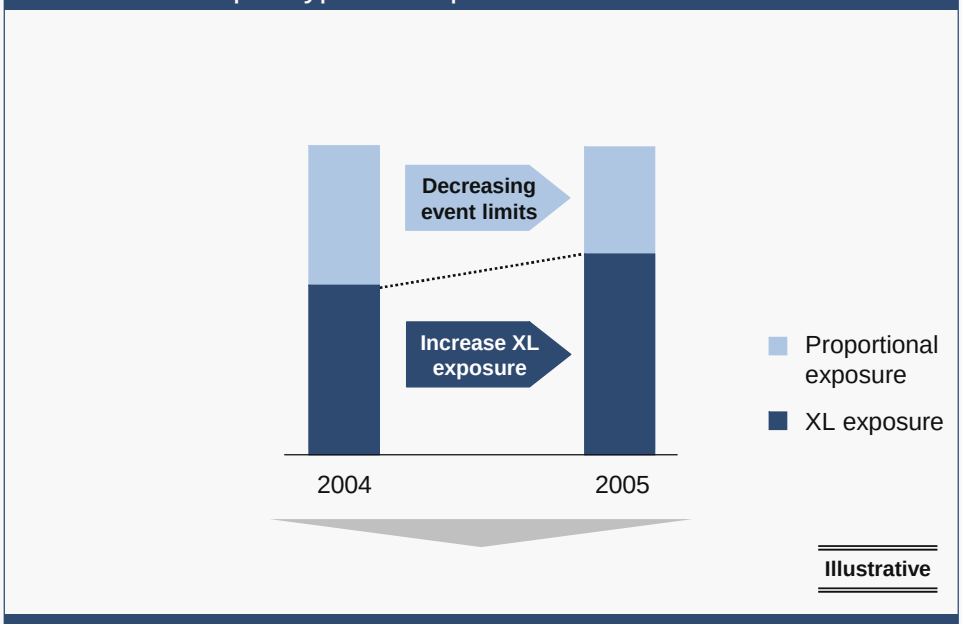
Munich Re's Japan typhoon exposure



Flexible product policy regarding XL vs. proportional covers optimises portfolio risk/return

Relatively stable Munich Re typhoon exposure due to:

- Increased XL exposure (+25%) on account of attractive price increases (+20 to 30%)
- Decreasing event limits in proportional treaties offset increased XL exposure

Portfolio optimisation

Case Study IV: Illustration of active capital management leading to reduced cost of capital

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Life and health reinsurance branch released from requirement to hold separate assets and capital from 1 January 2005

Background

- For historical reasons Munich Reinsurance Company had operated a branch with dedicated trust assets covering liabilities and stand-alone capital requirements
- Munich Reinsurance Company was required to provide parent company statutory returns to its home regulator (BaFin) ***and*** branch regulator applying different accounting rules, asset admissibility tests and liability valuation rules
- Difficulties in "interpreting" rules of one regulator into another regulator's regime
- Financial supervision for Munich Reinsurance Company is performed on the basis of "home state" regulation principles since 1.1.2005

Result

- Capital and reserve requirements of branch determined according to parent company requirements assessed under BaFin rules
- BaFin and branch regulator form a "college of regulators" facilitating effective group supervision
- Group capital requirements determined on an economic basis communicated to BaFin providing more robust capital adequacy information
- Overall release of statutory risk capital of €523m leading to one-time improvement in embedded value earnings of €167m (4.3% EV earnings) for CY 2004

Portfolio optimisation

Effective risk governance: Clear segregation of responsibilities and controls

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Board of Management

Determines Group risk tolerance, approves budgets and limits and delegates authority

A forum to manage all critical business risk

- Insurance risk
- Market risk
- Credit risk
- Operational risk

Board Risk Steering Committee

- Guidelines
- Capital model
- Replicating portfolio
- Reserves
- Risk control and mitigation
- Solvency II
- Risk disclosure

Business units/risk owners

- Identify and evaluate risks within their business
- Take risks within delegated authority
- Take steps to mitigate all risks associated with their business
- Endorse decisions outside of delegated authorities to next higher approval level
- Manage and own risks of all approved transactions regardless of ultimate approval level

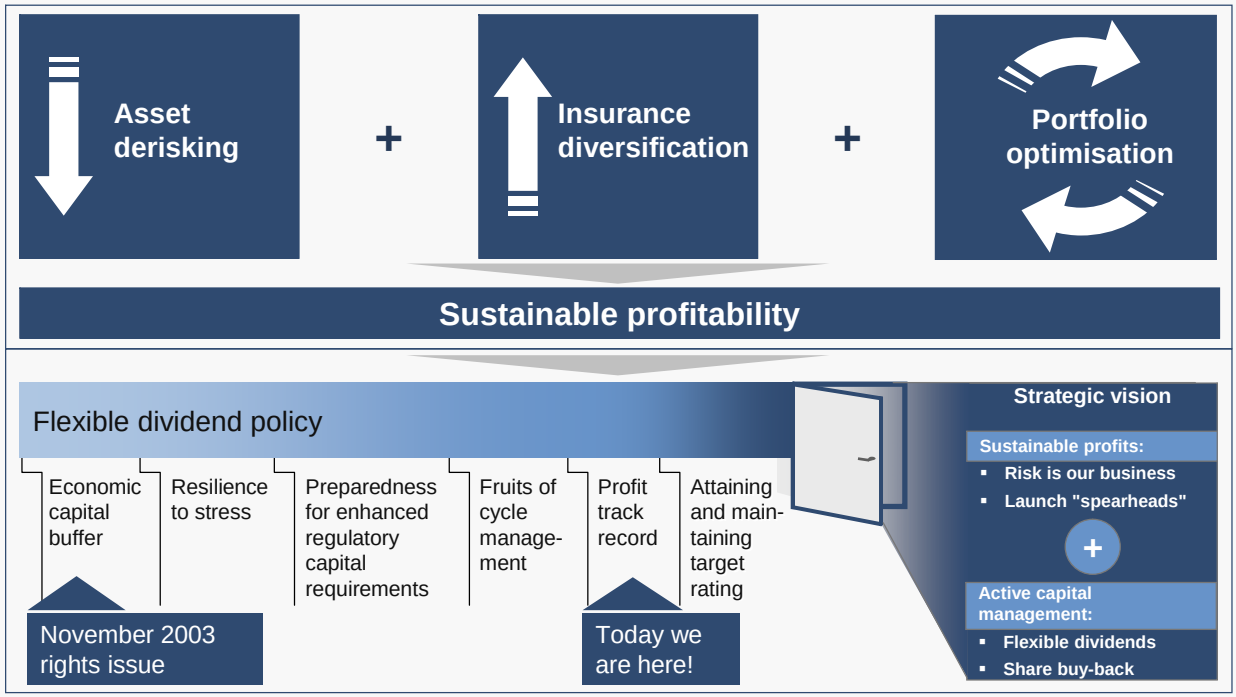
Independent risk management

- Determine, aggregate and monitor group-wide risk capital consumption
- Monitors Group-wide and cross balance sheet accumulation risks, budgets and limits
- Sign off on replicating portfolio
- Develop risk mitigation strategies
- Act as a risk consultant to business units

Internal auditing

Independent verification that effective controls are in place and functioning properly

Integrated risk management in the Munich Re Group: Working for our shareholders



Appendix

Financial calendar

Contacts

Disclaimer

Appendix

Financial calendar

Münchener Rück
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- **4 August 2005**
  Interim report as at 30 June 2005
- **7 November 2005**
  Interim report as at 30 September 2005
- **14 March 2006**
  Annual report 2005
- **19 April 2006**
  Annual General Meeting
- **20 April 2006**
  Dividend payment
- **9 Mai 2006**
  Interim report as at 31 March 2006
- **3 August 2006**
  Interim report as at 30 June 2006
- **7 November 2006**
  Interim report as at 30 September 2006

Appendix

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