CREDIT RISK IN THE REINSURANCE INDUSTRY

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State of the insurance industry

- Industry eventually survived crisis relatively unharmed, with notable exceptions
- However, industry threatened by spill-over of regulatory concepts directed to banks
- At times, risk capacity was an issue (sometimes unnoticed)…
- …but industry was lucky that Solvency II has not been in place at year end 2008
- Uncertainty around Solvency II calibration has recently depressed insurance sector…
- …but finally there are some good news: QIS5 calibration looks more reasonable than what could be expected
- Future earnings potential under pressure due to lower investment income – insurance companies again in search for yield enhancement
- Industry still too dependent on banking industry – government debt an increasing concern

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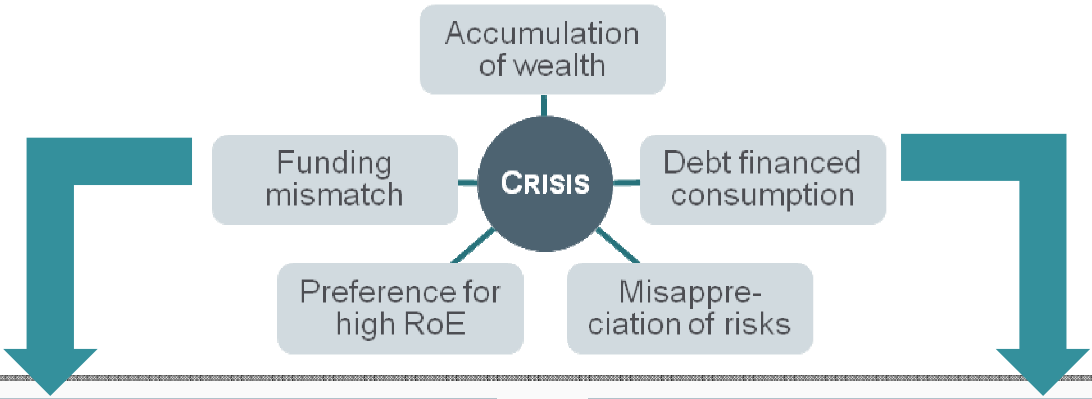
Overview on current regulatory activities



Macro prudential response

- EU: Establishment of European Systemic Risk Board (ESRB) and strengthening of the 3L3 committees (CEIOPS/CEPS/CESR)[1]
- G20: Turns FSF (Financial Stability Forum) into the FSB (Financial Stability Board)
- US treasury: Creation of 'Financial Services Oversight Council'

Inclusion of insurance industry still open; insurance industry needs adequate representation in new bodies

Micro prudential response

Insurance

- Solvency II

(Level 1 decision taken; implementation ongoing)

Banking

- Revise Basle II and increase capital requirements
- Discussions:
  - Living will
  - Too big to fail
  - Leverage ratio
  - Burden sharing

Insurance industry less prone to systemic risk; measures proposed for banks not sensible for insurance companies

[1] European supervisory boards for insurers, banks and securities trading (CEIOPS: Committee of European Insurance and Occupational Pensions Supervisors, CEPS: Centre for European Policy Studies, CESR: Committee of European Securities Regulators).

Geneva Association study on systemic risk in insurance

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Criteria for systemic relevance

FSB criteria

- **Size**: “The volume of the financial services provided by the individual component of the financial system”
- **Interconnectedness**: “Linkages with other components of the system”
- **Substitutability**: “The extent to which other components of the system can provide the same services in the event of a failure”

IAIS Addition

- **Timing:** Allowing for the fact that systemic insurance risk does not typically generate immediate shock effects, but plays out over a longer time horizon

Conclusions of GA study

- Criteria should be applied to activities, not to institutions
- Only few activities of insurance groups are systemically relevant
  - Derivatives activities (incl. CDS writing) on non-insurance balance sheets
  - Mis-management of short-term funding raised through securities lending and commercial paper
- Insurer wind-ups are stable processes that do not pose a systemic risk
- 5 measures recommended
  1. Implement comprehensive, integrated and principles-based supervision of insurance groups
  2. Strengthen liquidity risk management
  3. Enhanced regulation of Financial Guarantee Insurance
  4. Establish macro-prudential monitoring with appropriate insurance representation
  5. Strengthen risk management practices

Source: Geneva Association

Credit risk in the reinsurance sector

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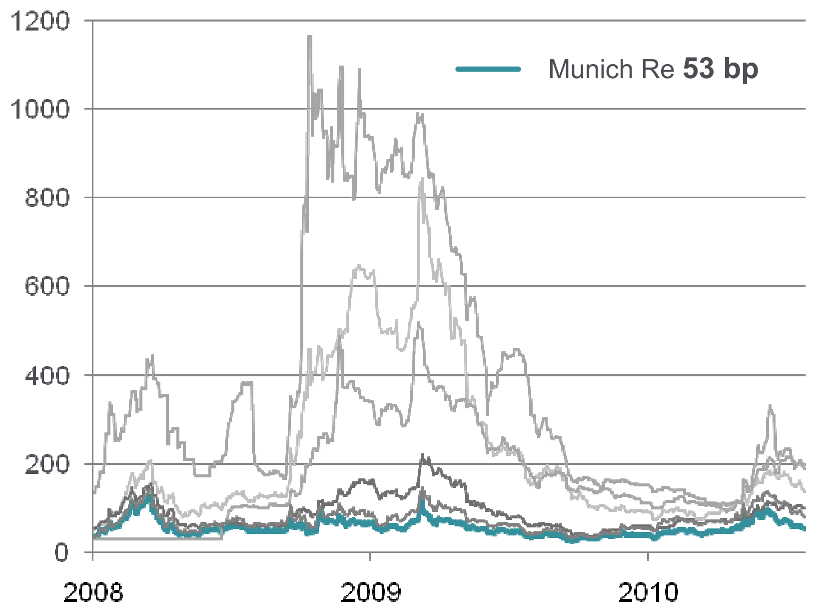
CDS of major reinsurers[1]



- CDS spreads of reinsurers during crisis have been driven by a variety of risks, of which one may be credit risk.
- CDS spreads can be distorted by lack of liquidity

Reinsurers credit spreads varied widely in crisis, but not always driven by credit risk

"Hidden dangers" (past and future)

- Reinsurers sometimes considered as „naive capacity" for credit risk, specifically in times of crisis. Examples:
  - Structured credit
  - Financing transactions
  - Leveraged buy-out
  - Fronting
  - Etc.
- Importing of credit risk through banking exposures
- Lower investment yields may bring yield enhancement strategies back on the agenda

Many hidden dangers and temptations to resist

[1] Source: Bloomberg (1.1.2008–27.07.2010). Universe: Munich Re, Berkshire, Hannover Re, Scor, Swiss Re, XL Re.

Solvency II brings more discipline to the insurance industry

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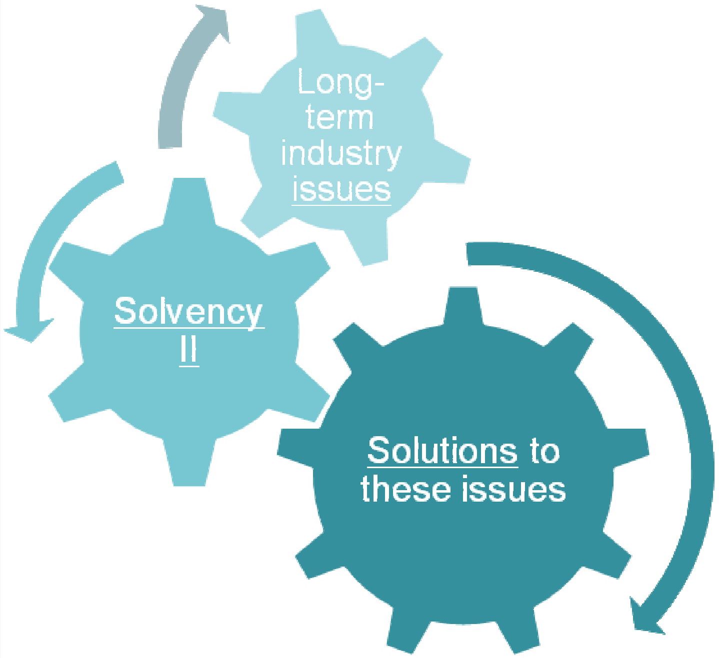
Solvency II acts as a catalyst…



…to resolve some old industry issues

Example: Primary life insurance

- Issue: Long-term guarantees and options often not properly priced and hedged
- Solvency II: Requires capital for mismatch; demonstrates where return is insufficient for risk taken
- Solution: Improving ALM, product design

Example: Reinsurance

- Issue: Reinsurance programmes not always optimal in terms of risk transfer
- Solvency II: Reinsurance matters for capital requirements
- Solution: Impact of reinsurance structures can be measured and optimised

Example: Investments

- Issue: Insufficient profitability of underwriting compensated by taking high investment risks
- Solvency II: Risk capacity places limit on this strategy
- Solution: Focusing on profitable underwriting

Solvency II brings more discipline to the industry

Solvency II to fully crystallize the value of the reinsurance business model

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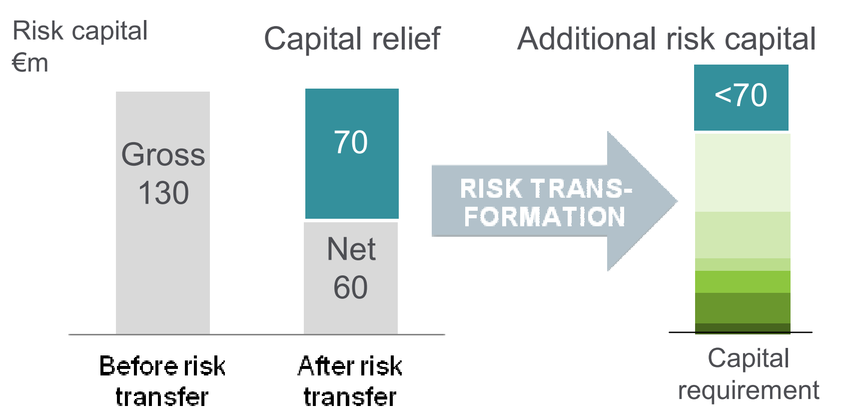
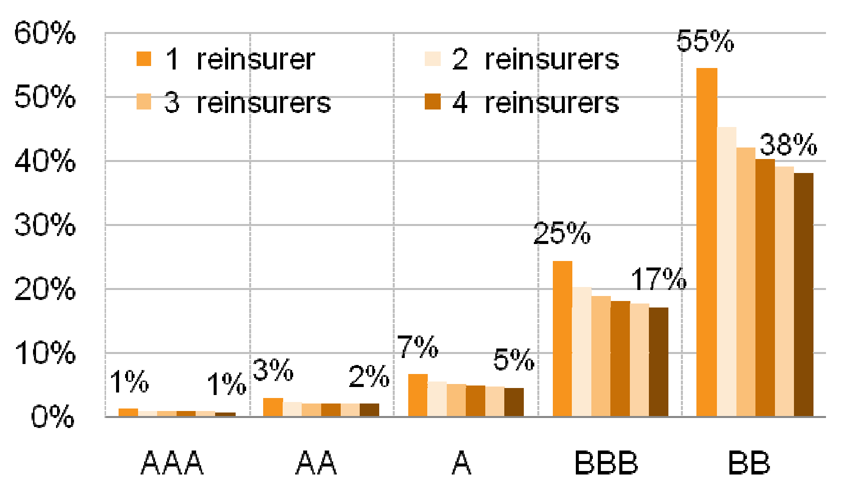
Risk transfer – Illustrative

Primary insurer's portfolio

Reinsurer's portfolio



Deduction on capital relief for the counterparty default risk[1]



Diversification of reinsurers is higher due to
- Number of individual risks
- Geographical spread (global business model)
- Product and line of business mix

- Explicit consideration of reinsurance credit risk through a deduction from capital relief
- Example: Capital relief from a reinsurance treaty with only one AA-rated reinsurer greater than with a panel of six A-rated reinsurers

Well-diversified reinsurers will benefit from Solvency II

Financial strength to provide a clearer competitive edge

[1] Graph based on Consultation Paper No. 51: SCR standard formula – further advice on the counterparty default risk module A.9.

First real test for Munich Re's risk management frameworks after 2002-2003 crisis

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ERM developments at Munich Re

Development and implementation

Strategic decision taken after 2002–2003 crisis:

- Redesign of investment strategy to reduce dependency on capital markets; state-of-the-art ALM implemented
- Sustainable profitability achieved in core businesses
- Central ERM teams established under CRO leadership (2004); risk governance/measurement/reporting strengthened

Reality check

- Subprime crisis in 2007 and subsequent capital market crisis in 2008 constitute an extremely taxing environment
- First real test of ERM framework
- Highlights the importance of risk management in its original role – in addition to the business enabler

Evaluation and enhancements

- Efforts around ERM have prevented Munich Re from the worst in this crisis
- Strengthens position of ERM teams
- Identification of areas for improvements ongoing

2002 crisis has triggered necessary developments of ERM

Strengthening country risk management in light of EU sovereign debt crisis

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Measures being considered

County limit system	▪ Agency ratings complemented with market parameters (like with corporate debt) ▪ Limits for previously unlimited countries (e.g. AAA countries)
Investment benchmarks	▪ Consideration of asset classes as alternative to government bonds ▪ Challenging traditional benchmarks, since higher leveraged countries have over-proportional weight in index
Scenario analysis	▪ In-depth analysis of existential scenarios ▪ Quantitative assessment of these scenarios, considering likely policy reaction ▪ Evaluate potential risk mitigating measures (risk / return trade-off)
Strategic considerations	▪ Assess current M&A strategy in respect of country risk ▪ Development of strategies for a potential country default, considering the legal setup and the nature of the business of the respective entities ▪ Assessment of potential expropriation scenarios

European sovereign debt crisis have triggered changes at MR risk setup

Historical Analysis: Munich Re managed three major economic crises in Germany in the 20th century

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	Economic environment	Impact on Munich Re
Hyper-inflation 1922/23	▪ Default of German government and corporate bonds ▪ Depreciation of saving accounts and life insurance policies ▪ Collapse of economic life (salary depreciation, increasing unemployment)	▪ Initially, claims inflation leading to high combined ratios, subsequently new contract conditions introduced (e.g. interim premium adjustments) ▪ Munich Re investments only partially affected due to foreign participations and real estate **Strong competitive position of Munich Re due to available capacity**
World economic crisis 1929–32	▪ Decreasing turnover of companies ▪ Crash in stock markets and high corporate default rates ▪ Protectionist trade policy ▪ High unemployment rates	▪ Drop in premium by 25% ▪ High losses in credit and life insurance ▪ Positive claims development **Overall positive and relatively stable returns in each year**
Monetary reform 1948	▪ Increased money supply and subsequent inflation in Germany (Reichsmark) ▪ Default of German government and corporate bonds ▪ 90% depreciation of private pension policies	▪ Munich Re suffered losses due to the depreciation of Reichsmark ▪ Rebuilding of foreign business accelerated by rapid setup of the DM opening balance sheet **Financial strength was re-established within three years (e.g. premium increase by 30%)**

Munich Re successful in mastering prior crises,
but current situation requires analysis of further scenarios