2014 EAAC TAIPEI TAIWAN

18TH EAST ASIAN ACTUARIAL CONFERENCE

12-15 October 2014

Taipei International Convention Center in Taipei Taiwan

Stresses and Scenarios in the context of ORSA

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EAAC

What is ERM?

Enterprise risk management is a process, effected by an entity's board of directors, management and other personnel, applied in strategy setting and across the enterprise, designed to identify potential events that may affect the entity, and manage risk to be within its risk appetite, to provide reasonable assurance regarding the achievement of entity objectives.

Source: COSO, Enterprise Risk Management — Integrated Framew

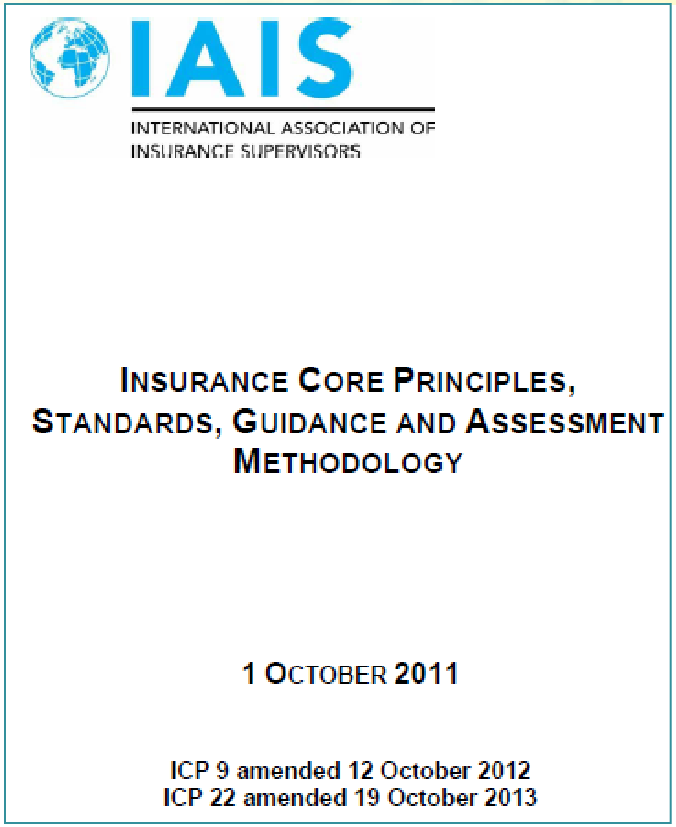
ERM is a risk-based approach to proactively manage your company

Regulatory view

Insurance Core Principles

The supervisor requires

- the insurer to perform its **own risk and solvency assessment** (ORSA) regularly to assess the adequacy of its risk management and current, and likely **future, solvency position**.
- the insurer’s **continuity analysis** to address a combination of quantitative and qualitative elements in the medium and longer-term business strategy of the insurer and include **projections of its future financial position** and analysis of its ability to meet future regulatory capital requirements.


IAIS

INTERNATIONAL ASSOCIATION OF INSURANCE SUPERVISORS

INSURANCE CORE PRINCIPLES, STANDARDS, GUIDANCE AND ASSESSMENT METHODOLOGY

1 OCTOBER 2011

ICP 9 amended 12 October 2012
ICP 22 amended 19 October 2013

Understanding the financial vulnerability and viability of the firm

Regulatory view

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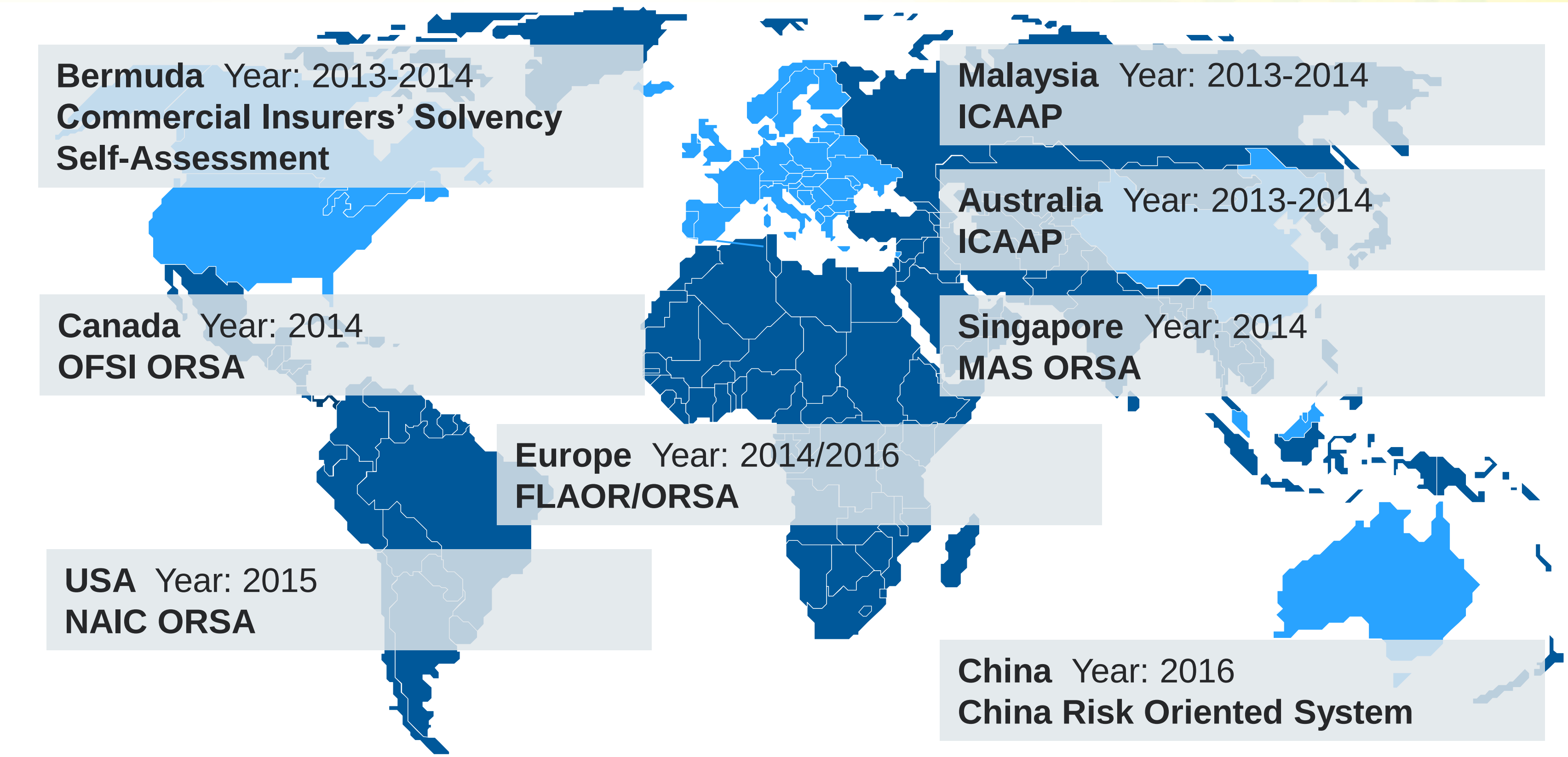
What is ORSA?

ORSA can be defined as the entirety of the processes and procedures employed to identify, assess, monitor, manage and report short and long-term risks which a company **faces or may face** and determine the own funds necessary to **cover the overall solvency needs at all times**.

Source: CEIOPS Issues Paper on ORSA, 2008

Understanding the financial vulnerability and viability of the firm

ORSA is going world-wide

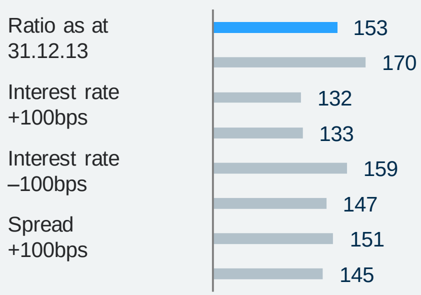


Further countries will follow

Definition and illustration

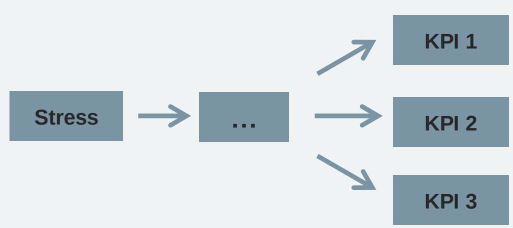
Sensitivity

A sensitivity analysis allows determination of how "sensitive" a model is to a small change of a single risk factor, and to changes in the structure of the model itself.



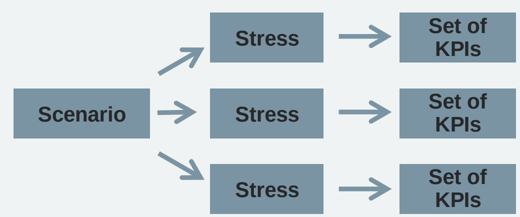
Stress

A stress is an adverse development of a single risk factor or parameter.



Scenario

A scenario is an adverse development of a number of interconnected risk factors or parameters.



What stress tests all have in common:
they are only as good as the underlying assumptions

Process of scenario analysis

Identification and definition of scenarios → Assessment of impact → Communication of results to management → Identification and definition of management decisions

Asked what he feared most, the British Prime Minister Harold Macmillan responded…

„Events, dear boy. Events“

Types of approaches

Historical approach

Benefits:

- Trigger is identified
- Easily understandable
- Effects are known

Challenges:

Consideration of changes, e.g.:

- Population mix
- Medical advances
- Globalization
- Inflation
- Legal and regulation

Synthetic approach

Benefits:

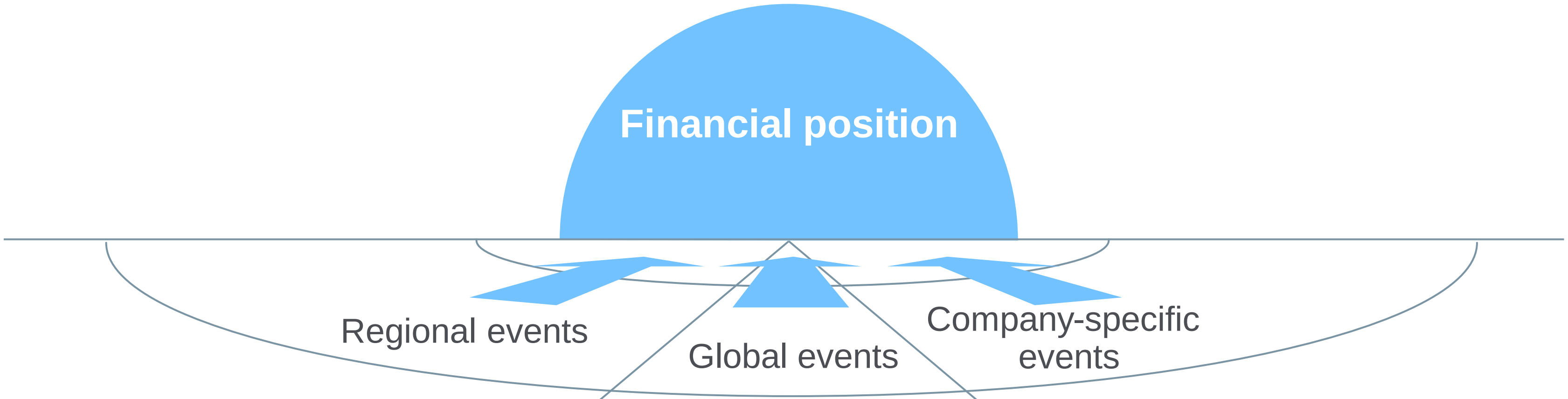
- Adaptation to company specifics

Challenges:

Extensive assumptions:

- Triggers
- Effects
- Correlations

Initial events for scenarios



- Hurrican Katrina 2012
- Tōhoku earthquake and tsunami 2011
- Swedish banking crisis of 1992
- Great Kantō earthquake 1923

- Financial crisis 2008
- Stock market fall 2001/2002
- Spreads widening – LCTM 1998
- US Interest rates 1994
- European currency crisis 1992
- Nikkei crash 1990
- Stock market fall 1987
- Great Depression 1929
- Spanish Flu 1918

- Asset-Liability-Management
- Acquisition and M&A
- Business strategy
- Sales channels
- Product mix

Expected vs. unexpected adverse events

Evaluation of scenarios

Risk dependencies

Relationship of risk factors

- Cause-and-effect
- Statistical

Capturing of time-dependencies or the causal relationships

Time evolution

Immediate dependencies

- Share index and price of share

Time-lagged dependencies

- Decrease of interest rates and deflation

Phase-shift dependencies

- Increase of mortality rates and financial market

Example: Subprime Crisis

Decline in housing prices — 2007

Collapse of subprime industry — 2008

Credit crunch — 2009

Global recession — 2010

Default of credit insurers — 2011

Default of corporates

Default of sovereigns

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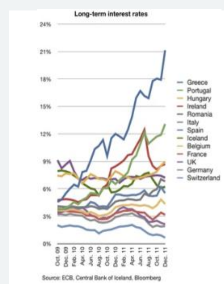


Source: Central Bank of Iceland, Kalkofnsvegur 1, 150 Reykjavík, Iceland.“


THE TI
Lehman collapse sends shockwave round world

Source: The Times

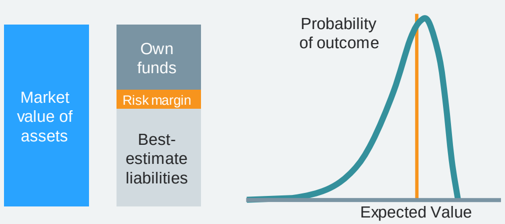

The biggest shares rise ever seen
£92bn jump is largest since FTSE 100 began

Dependencies in stressed situations are different

Analyzing consequences

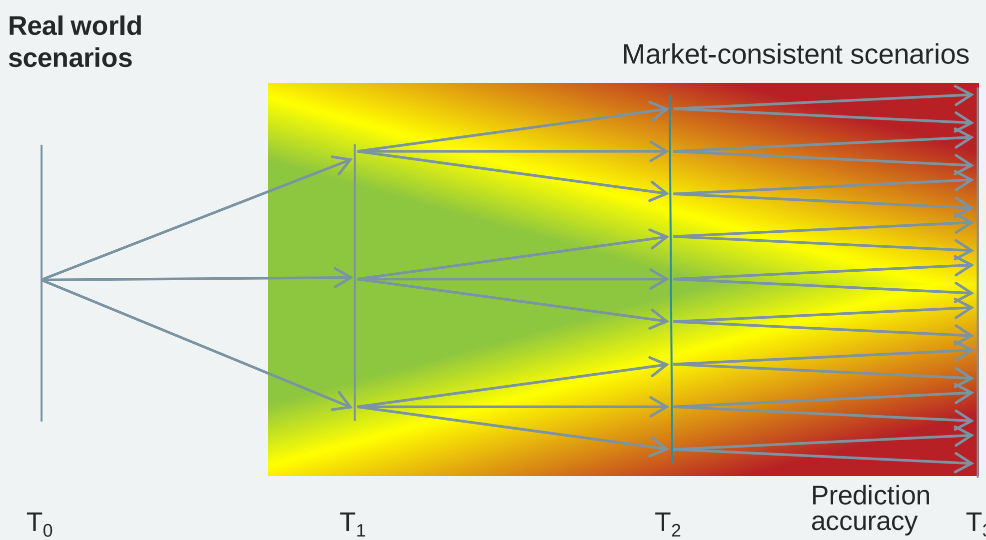
Impact on…

- Regulatory requirements
- IFRS / US GAAP
- Embedded Value
- Economic balance sheet
- Capital strategy and investment strategy
- Risk model and capital
- …



Secondary consequences

- Ratings down-grade
- Collateral requirements
- Liquidity shortfall
- Regulatory constraints
- Increased policyholder lapse
- Reputation
- Reduced business volume
- Transferability
- Higher cost of capital
- …



Analyzing consequences

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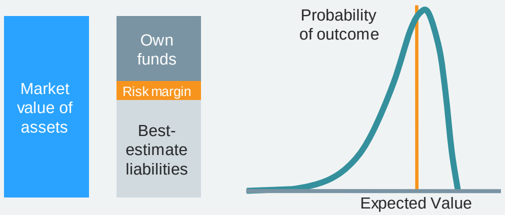

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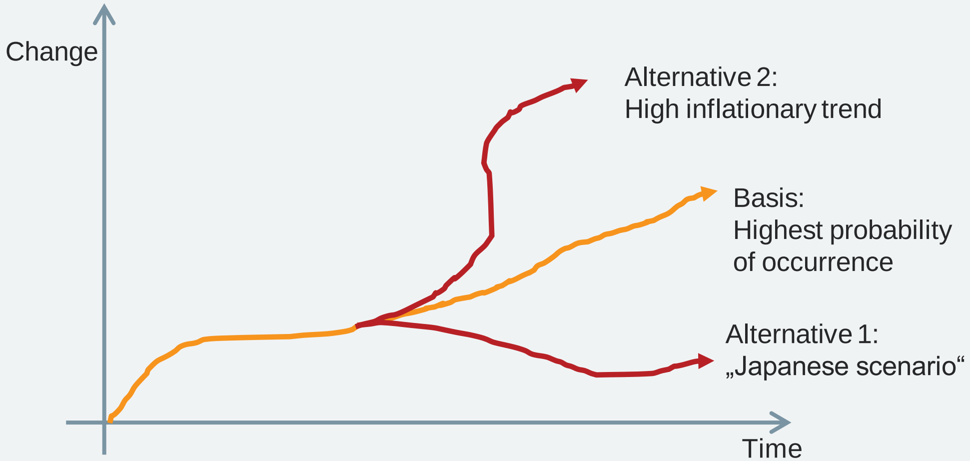


Defining the risk appetite by telling a story

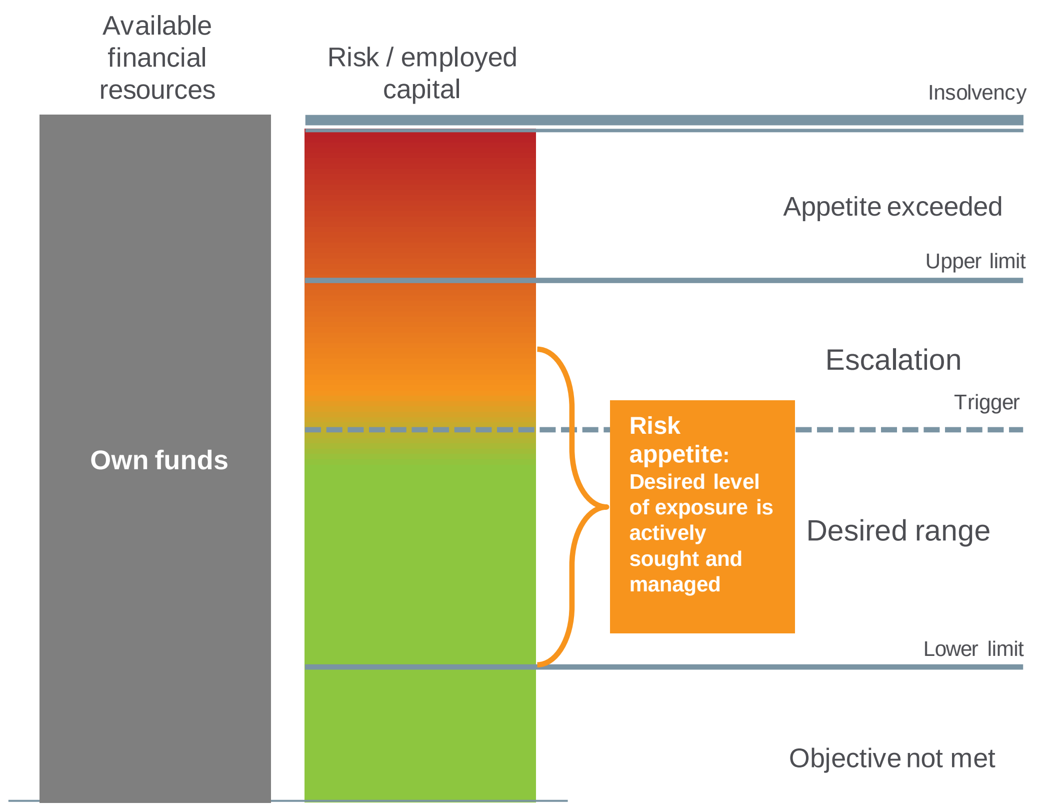
Scenario-name: Dot-com bubble

Scenario story

- Narrative reports
- Context for potential events
- Visualizing of impact:
  - Business strategy
  - Valuation frameworks
  - Competitiveness
- Consideration of different expectations:
  - Policyholder
  - Stakeholder
  - Regulator

Stable income vs. minimizing risk

Defining the risk appetite by telling a story



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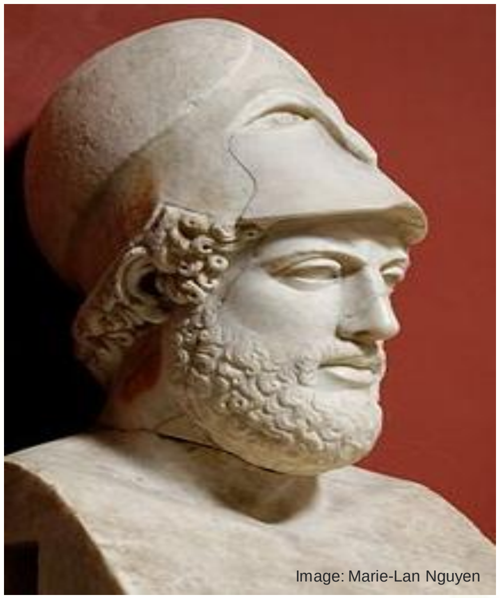
Stable income vs. minimizing risk

Mitigation actions and response strategies



Pericles (~ 495 – 429 BC)

"It is not a matter of predicting the future, but of being prepared for it."

$$\text{Solvency Ratio} = \frac{\text{Available Capital}}{\text{Required Capital}}$$

Option 1:
Increasing available capital

Option 2:
Reducing required capital

- Capital increase
- Change in the asset allocation
- Contingent funds
- Risk avoidance
- De-risking of assets
- Reinsurance

Recovery of financial position

"What's our strategy if X happens?" instead "What are the chances that X will happen?!

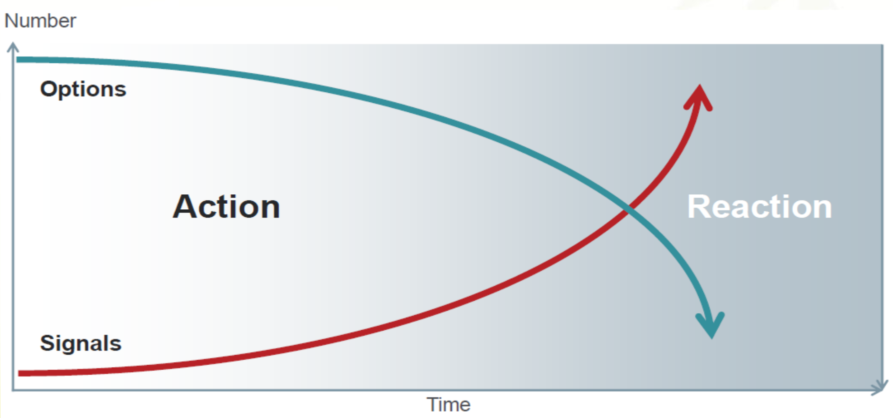
Reverse Stress Test

Scenario testing – Assessment of defined events

Identification and definition of scenario → Assessment of impact and consequences → Communication and management decisions

Reverse stress testing – Identification of scenarios with a defined impact

Identification and definition of scenario ← Assessment of impact and consequences ← Definition of possible financial loss



Implementation of countermeasures and business contingency plans in time

Evolution of business steering A success story, but expensive

Human evolution

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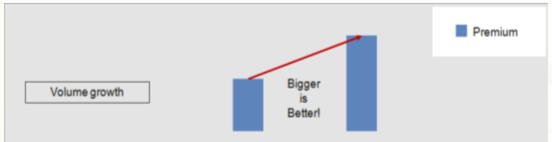
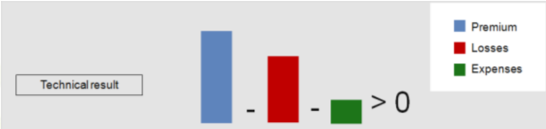
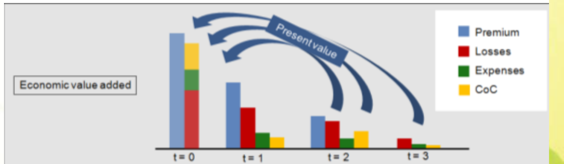


Measure of sucess	Volume growth
Main advantage	Simplicity
Main disadvantage	Does not consider quality of the business



Measure of sucess	Technical result
Main advantage	Simple metric while taking the quality of the business into account
Main disadvantage	Does not capture the true economics the business



Measure of sucess	Economic Value Added
Main advantages	Fully captures the economics of the business
Main disadvantages	Complexity

Risk management evolution

Case Study

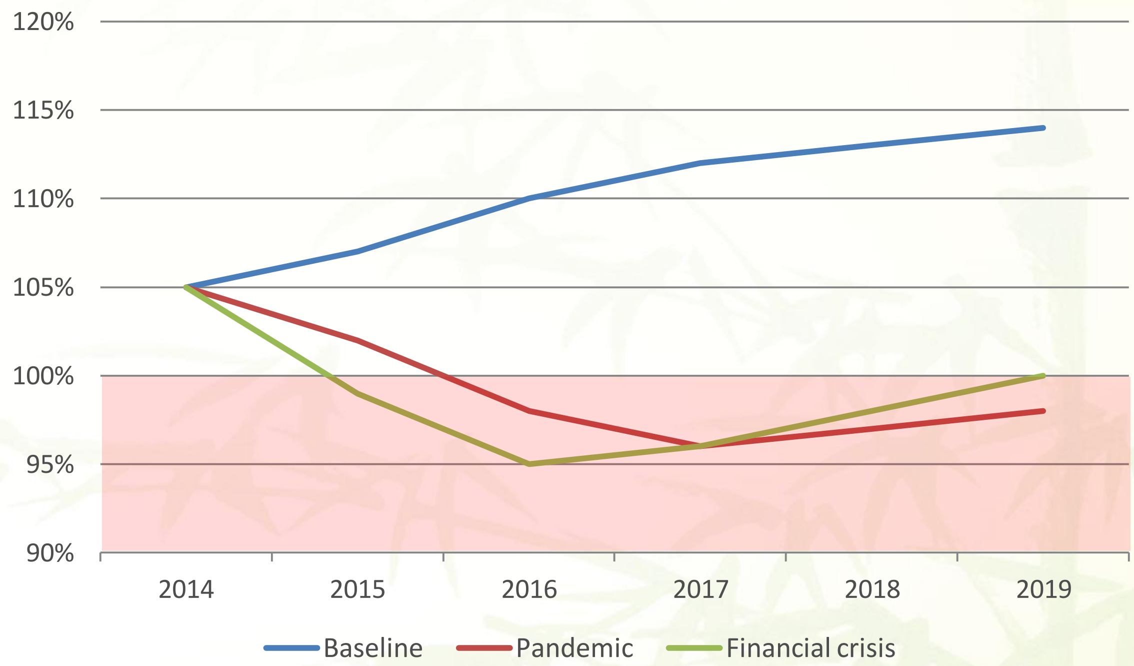
Case Study

Life insurance company – Scenario analysis

Baseline:
Stable new business as in the last years

Financial crisis:
Adverse capital market development caused in falling equity prices

Pandemic:
Initial outbreak of a flu pandemic with a high level of additional mortality



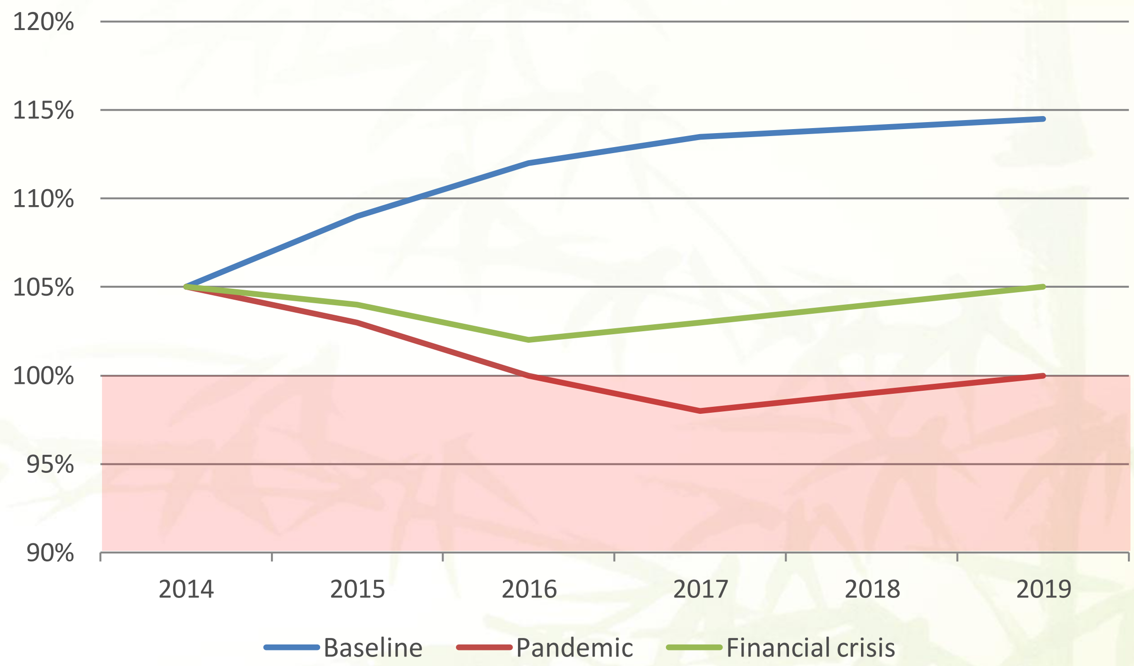
Case Study
Subordinated Bond

Scenario analysis – Issuance of Subordinated Bond

Baseline:
Increased Solvency Ratio for the next years

Financial crisis:
Increased Solvency Ratio, but higher spread over swap rates in stressed times

Pandemic:
Slightly increased Solvency Ratio but still below 100%



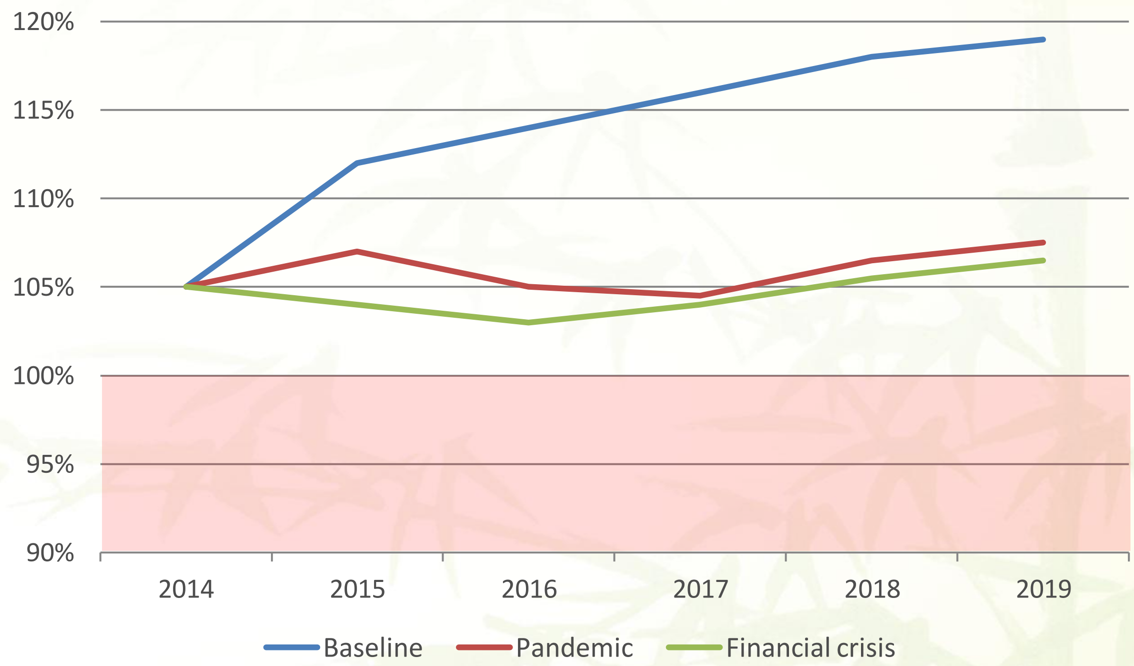
Case Study
Reinsurance treaty

Scenario analysis – Proportional reinsurance treaty

Baseline:
Increased Solvency Ratio for the next years

Financial crisis:
Stable Solvency Ratio for the next years by using reinsurance as hedging instrument and by reducing UW-risk

Pandemic:
Increased Solvency Ratio by sharing the losses with reinsurer and reducing UW-risk



Thank you for your attention

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