

**Gen Re | LifeHealth Seminar**

**“A Perspective on Risk Management,  
Profitability & Product Innovation  
in Life and Health”**

**13 March, 2008  
ACAL, Lebanon**

**A Berkshire Hathaway Company**

**in collaboration with ACAL**

## ***“A Perspective on Risk Management, Profitability & Product Innovation in Life and Health”***

### **Agenda**

- |   |                      |
|---|----------------------|
| • <b>Welcome Note and Introduction</b>                | <b>14:00</b>         |
| • <b>“Making sense out of risk management”</b>        | <b>14:05 - 14:45</b> |
| • <b>“Can you make profit in a competing market?”</b> | <b>15:00 - 15:30</b> |
| • <b>“Group life UW and RM applications”</b>          | <b>15:45 - 16:15</b> |
| • <b>“Workshop monitoring”</b>                        | <b>16:15 - 16:30</b> |
| • <b>“Life and medical product innovation”</b>        | <b>16:45 - 17:15</b> |
| • <b>“Workshop monitoring ‘cont’d’ ”</b>              | <b>17:30 – 17:45</b> |
| • <b>Wrap Up &amp; Reception from ACAL</b>            | <b>18:00</b>         |

# Warren Buffet Quote



**“Cheap” reinsurance is a fool’s bargain: When an insurer lays out money today in exchange for a reinsurer’s promise to pay a decade or two later, it’s dangerous – and possibly life-threatening – for the insurer to deal with any but the strongest reinsurer around.**

# Team work: a success story!

- It is essential to compile data and ascertain of data integrity within a desired scope prior commencing any project i.e. specifically risk management
- It is important to assign specific tasks to check and monitor any process, structure, or desired model and have the art to merge all this together to reach the objective i.e. take a decision with qualitative and quantitative ingredients

# Team work



# Are you insured?

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# Are you insured?

- **Risk Management** is definitely not new to anyone but it has gained more importance in the last two decades due to the increasing complexity and nature of risks: Market, Financial, Operational, or Capitalization
- **Risk types:** there are, in practice, a number of different ways that risk types are categorized. Below are a few categories that are commonly used:
  - **Market risk:** exposure to uncertainty due to changes in rate or market price of an invested asset (e.g., interest rates, equity values).
  - **Credit risk:** exposure to loss due to the default or downgrade of a counterparty (e.g., bond-issuer, reinsurer).
  - **Operational risk:** exposure to uncertainty arising from daily tactical business activities.
  - **Strategic risk:** exposure to uncertainty arising from long-term policy decisions.
  - **Liquidity risk:** exposure to adverse cost or return variation stemming from the lack of marketability of a financial instrument at prices in line with recent sales.
  - **Hazard risk:** exposure to loss arising from damage to property or stemming from occupation

# Are you insured?

## Risk Tolerance within our insurance world

- **Insurance risk**
- **Investment risk**
- **Credit risk** 
- **Operational risk**

## “Making Sense out of Risk Management”



*“A perspective on Risk Management, Profitability & Product Innovation in Life and Health”, ACAL 13.03.2008*

*Mazen G. Abouchakra*

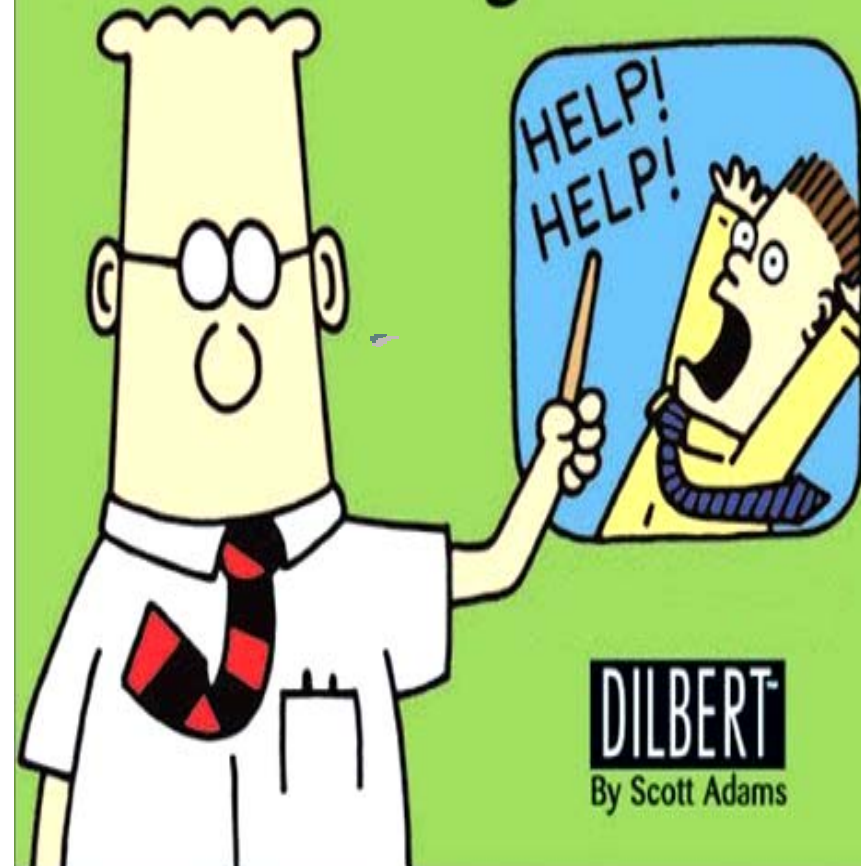
# “International Seminar on Risk Management” 2003 – 2007 Germany

<b>David Gamble</b>	Association of Risk Managers and Insurers, U.K.	<b>Why produce a Risk Management standard?</b>
<b>Heijo Hauser</b>	Tillinghast-Towers Perrin, Cologne	<b>How can ERM help to increase the value of your company?</b>
<b>Rainer Isringhaus</b>	Gen Re, Cologne	<b>Etymology of the word risk</b>
<b>Harpal Karicut</b>	HSBC Life, U.K.	<b>How does a bank handle risk?</b>
<b>Wil A.M. Koning</b>	Eureko, Netherlands	<b>Risk Management in a multinational insurance co.</b>
<b>Michael Richter</b>	Gen Re, Cologne	<b>Risk Management from reinsurance perspective</b>
<b>Prof. Dr. Heinrich Schradin</b>	Cologne University	<b>Risk and Uncertainty</b>

# Agenda

- “Opening Notes”
  - Why?
  - What?

**Our Disaster Recovery Plan  
Goes Something Like This...**



# RISK MANAGEMENT ...



**... a consequence of today's competitive and increasingly volatile business environment**

- Increasing natural hazards and catastrophes
- Increasing fluctuations in capital markets
- Increasing accumulation of value
- Increasingly large individual risks

**Global risks have significantly increased for insurers ...**

# Agenda

- **Why?**
- **What?**
- **How?**



# Why?

## Leading insurance executives were surveyed around the world

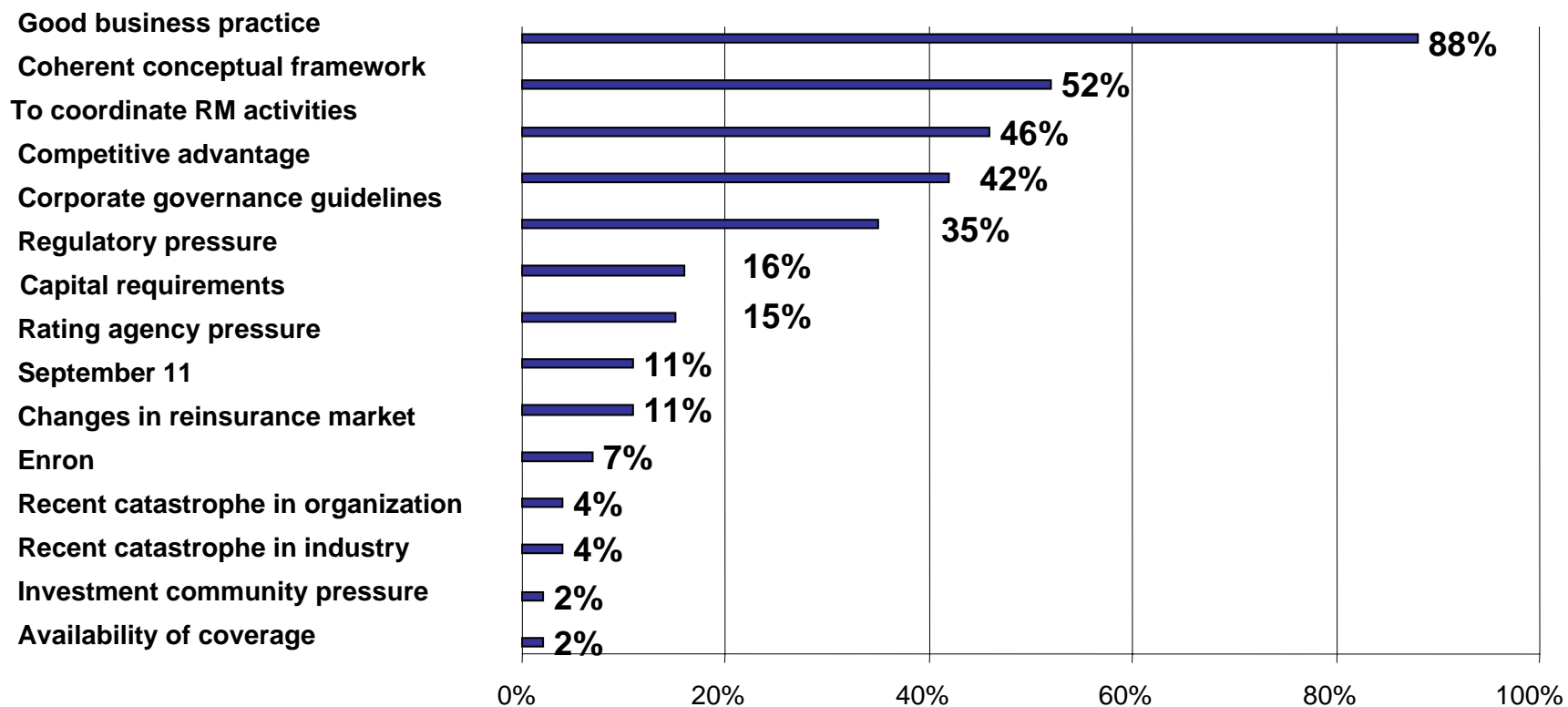
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- **Surveyed 94 industry Chief Financial Officers, Chief Risk Officers and Chief Actuaries were surveyed in major global markets**
  - **Geography: Mostly national or international in scope; 77% headquartered in North America**
  - **Company Structure: stock, mutual, other**
  - **Type of Operation: Life, Health, Property/Casualty, mutual funds and banking**
  - **Company Size: \$25 million to \$10 billion in direct premiums**
- **Supplemented with interviews and observations from our ERM consulting work**

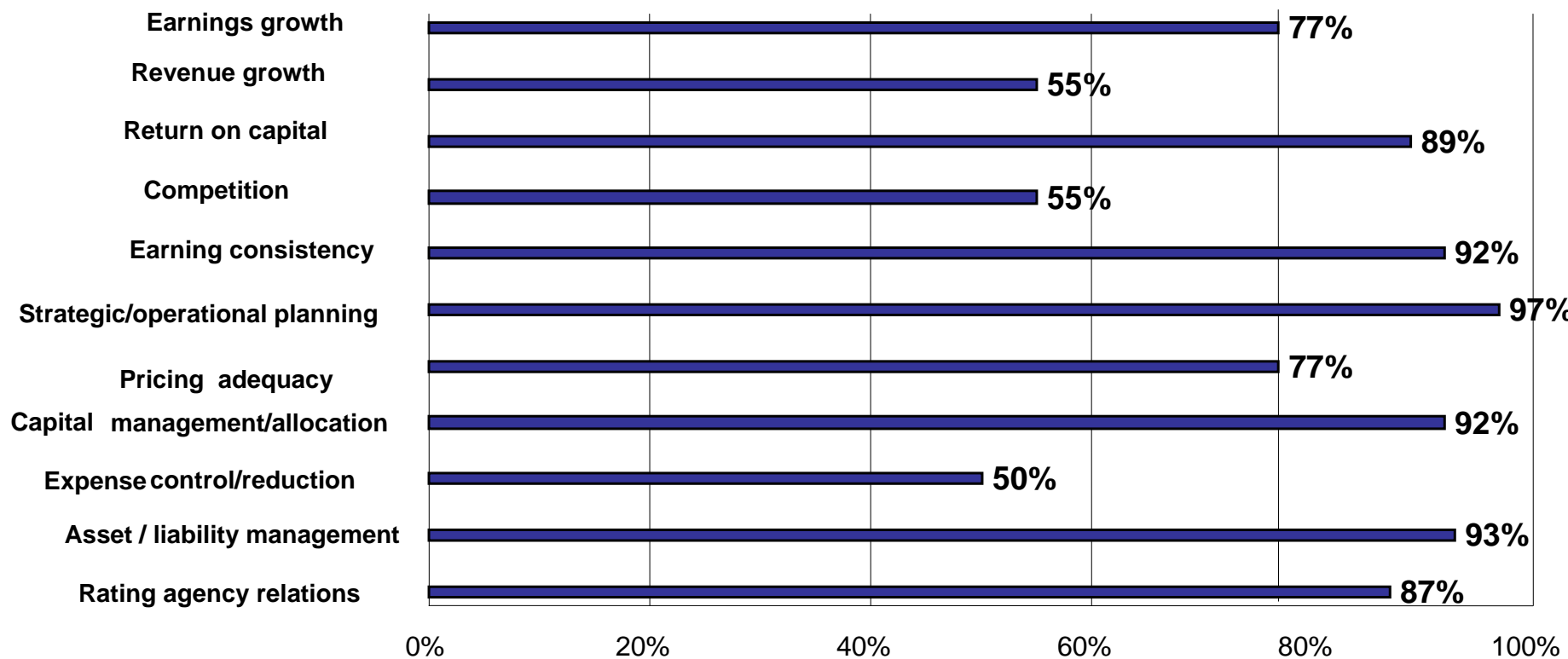
# Why?

## Insurers are adopting ERM because they believe it is simply part of good management



# Why?

## Respondents believe that ERM will help them address their most important business issues



# Why?

- **The absolute majority of insurers are adopting ERM because they believe it is simply part of good management and a good strategic business practice**
- **Respondents believe that ERM will help them address their most important strategic business issues such as: earning consistency, asset liability management, capital allocation and operational planning amongst others**

**Enterprise Risk Management (ERM)** being a rigorous process to optimize the dynamic relationship between risk and value throughout the insurance enterprise

# The Value Chain

## Risk Management

Capital

Product

Distribution

Adminis-  
tration

Asset Mgt.

# Risk Profile of an insurance company



# Agenda

- Why?
- What?
- How?



# Etymology of the term RISK



Greek: rhíza      root *or* rock  
rock as the root of a mountain

Latin: risicare      to negotiate every obstacle  
to navigate around the rocks

Italian: rischiare      risk *or*  
run the risk of doing something

⇒ original meaning of the term RISK:

***To run the risk of hitting rocks with a ship.***


The rock itself is not the danger. It becomes a risk through the interplay with a purposeful action.

***RISK*** originally means the danger that results from, the interplay of purposeful actions and certain environmental constellations

# What is RISK?

## Risk

Definition as in  
ISO/IEC Guide 73



- The combination of the probability of an event and its consequences
- Consequences can be opportunities for benefit (upside) and threats (downside)
- In the safety field consequences are seen always as downside (hazard)

# What is risk management? (I)

## Risk management process

- Risk Management (working definition):

„All actions of a corporate entity that are used to handle its risk in an economic framework.“

- Starting point: “risk management process”



# What is risk management? (II)



## Eureko's definition of success in RM

*Eureko's Risk Management goal  
is to have  
the Group and every single Business Unit  
capable  
to identify, measure, monitor and control  
its risk exposures  
and to be able  
to demonstrate that  
in appropriate management reporting.*

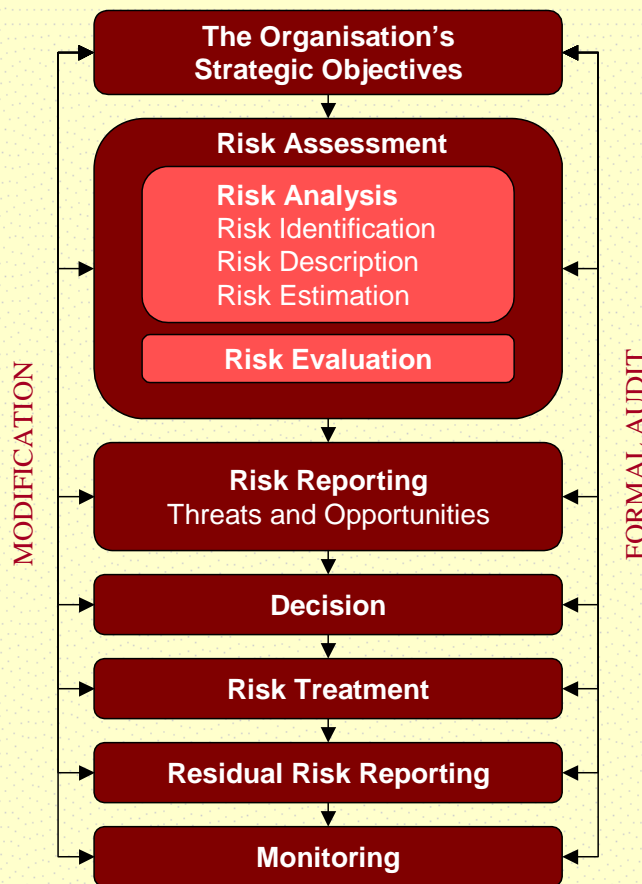


# What is risk management? (III)

Risk Management  
as in ISO/IEC  
Guide 73:

Coordinated  
activities to direct  
and control an  
organization with  
regard to risk

## The Risk Management Process



“A board that does not understand the strategy may not appreciate the risks. And if it does not appreciate the risks it will probably not ask the right questions to ensure the strategy is properly executed”

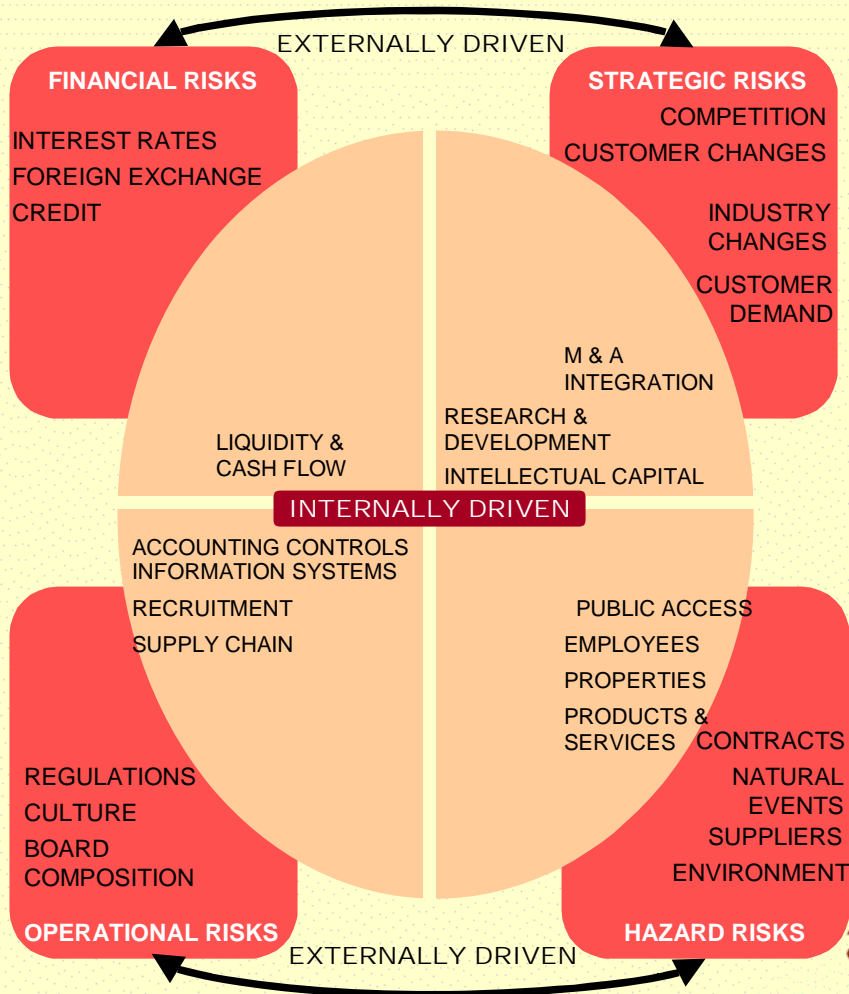
Justice Neville Owen

# Risk Identification

ISO/IEC Guide 73:

Process to find,  
list and  
characterize  
elements of risk

## Examples of the Drivers of Key Risks



# Risk identification: Operational risk related to reinsurance

Operational risk means the risk of loss arising from inadequate or failed **internal processes**, or from personnel and systems, or from external events

## Process related to reinsurance

- ✓ Tender
- ✓ Quotation
- ✓ Evaluation
- ✓ Documentation
- ✓ Administration

## Induced Operational Risks

- ✓ Legal
- ✓ Underwriting
- ✓ Claims Management

# Risk Identification: There is a variety of factors to consider when selling an insurance product

Application Form

Business Mix

Bad Press

Interest Rates

Mortality

Claims Managers

Morbidity

Underwriters

Persistency

Money Laundering?

Policy Conditions

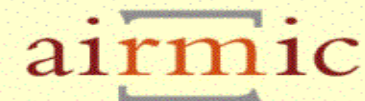
Credit Risks

Interest-Sensitive Lapsation

# Risk Description

## Risk Description

<b>1.Name of Risk</b>	
<b>2.Scope of Risk</b>	Qualitative description of the events, their size, type, number and dependencies
<b>3.Nature of Risk</b>	E.g., strategic, operational, financial, knowledge or compliance
<b>4.Stakeholders</b>	Stakeholders and their expectations
<b>5.Qualification of Risk</b>	Significance and Probability
<b>6.Risk Tolerance/ Appetite</b>	Loss Potential and financial impact of risk Value at Risk Probability and size of potential losses/ gains Objective(s) for control of the risk and desired level of performance
<b>7.Risk Treatment &amp; Control Mechanisms</b>	Primary means by which the risk is currently managed Levels of confidence in existing control Identification of protocols for monitoring and review
<b>8.Potential Action for Improvement</b>	Recommendations to reduce risk
<b>9.Strategy and Policy Developments</b>	Identification of function responsible for developing strategy and policy

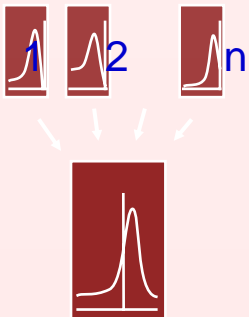


# Risk Estimation

(in a perfect [= mathematical] world)

## ISO/IEC Guide 73:

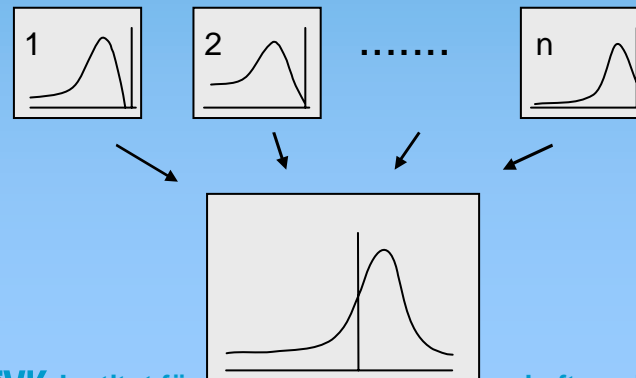
process used to assign values to the probability and consequences of a risk



## Risk-modeling and -evaluation (V)

### ■ Risk-modeling:

- Determining the random distribution for an individual risk
  - for each identified source of risk and for each exposure -
- Determining the overall random distribution of the economic entity
  - recognizing (inter)dependencies -
  - technical aggregation,
  - numerical aggregation (simulation methods),



# Risk Estimation

(in an imperfect [= real] world)

## Risk-modeling and -evaluation (I)

- Problematic nature -

- “Risk” as the product of severity (S) and frequency (F) ?

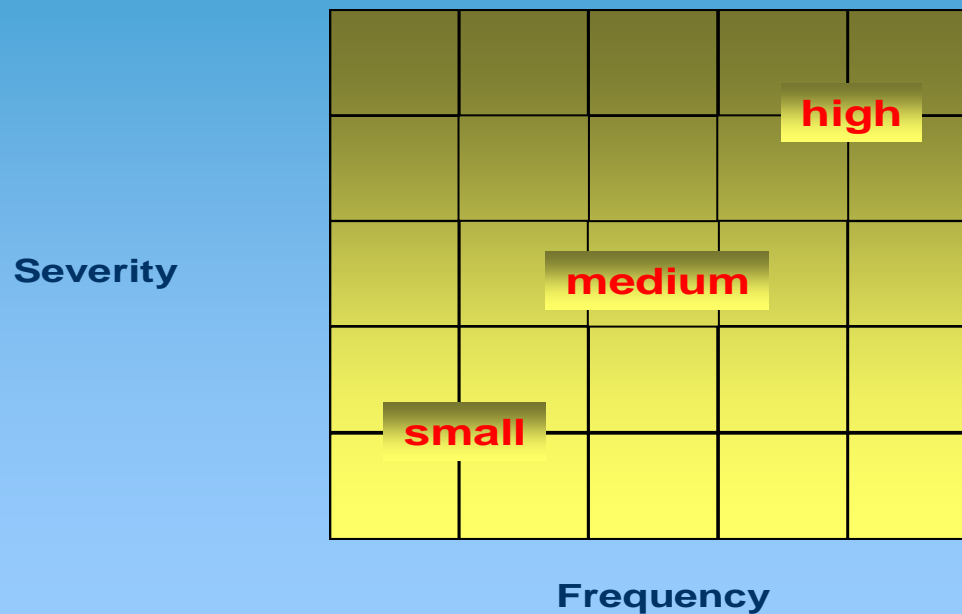
Scale	Severity (S)	Definition
1	low	Loss causes <i>unimportant</i> changes in processes and results
2	middle	<i>... important changes ...</i>
3	high	<i>... has major impact on the company's goals ...</i>
4	very high	<i>... is vital to certain areas ...</i>
5	vital	<i>... the whole existence is on risk ...</i>
Scale	frequency (F)	Definition
1	small	every 10,000 days (30 years)
2	middle	every 1,000 days (3 years)
3	high	every 100 days
4	very high	every 10 days
5	sure	daily

# Risk Estimation

(in an imperfect [= real] world)

## Risk-modeling and –evaluation (II)

- ✓ Risk as the product of severity (S) and frequency (F) ?



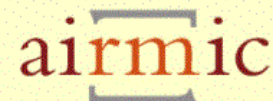
# Risk Evaluation

## ISO/IEC Guide 73:

process of comparing the estimated risk against given risk criteria to determine the significance of a risk

## Risk Evaluation

- **The benefits and threats in the decision**
- **The risk treatment options available**
- **The organisation's appetite for risk**



# Risk Treatment

- **ISO/IEC Guide 73 definition:**  
“Process of selection and implementation of measures to modify risk”
- **Elements**
  - Risk control
  - Mitigation
  - Avoidance
  - Risk transfer
  - Risk financing
  - ....

# Risk Monitoring [and Review]

- **Are risks effectively identified and assessed?**
- **Are the procedures complied with?**
- **Are the procedures (still) appropriate?**

# Agenda

- Why?
- What?
- **How?**



# Risk Management at Gen Re: Responsibilities

	Management	Business Units	Risk Council	Internal Audit
<b>Strategic risk management</b>	<b>X</b>			
<b>Operational risk management</b>				
– Identification/Description		<b>X</b>	<b>X</b>	
– Estimation		<b>X</b>		
– Evaluation		<b>X</b>		
– Controls		<b>X</b>	<b>X</b>	
– Risk Reporting		<b>X</b>		
<b>Review of effectiveness</b>				<b>X</b>

# Risk Reporting

- **Annual risk report**

- From: Chief Risk Officer
- To:
  - Board of Executive Directors
  - Audit Committee of the Supervisory Board

- **“ad-hoc” reports**

- From: Business units
- To: Board of Executive Directors
- In case of significant deterioration of a risk

# Annual risk report

## For each risk

- Identification / description of the risk
- Estimation
  - Impact: **A to E**
  - Probability: **0 to IV**
- Control measures
  - What?
  - Who?
- Monitoring of controls
  - What?
  - Who?

**Assessment**

**Treatment**

# Annual risk report 2005 - 2006

## Assessment scale

Impact		Probability	
Mo. Euro		in %	
<b>A</b>	>50	<b>IV</b>	>90
<b>B</b>	>25 - 50	<b>III</b>	>50 - 90
<b>C</b>	>10 - 25	<b>II</b>	>10 - 50
<b>D</b>	>1 - 10	<b>I</b>	>1 - 10
<b>E</b>	<1	<b>0</b>	<1

## Abbreviations

BoD	Board of Executive Directors
CR	Cologne Re
EuRe	Europe Re
np	non-proportional
p	proportional
...	...

*Risk Identification*

*Risk Assessment*

*Risk Control*

*Monitoring of risk control*

*Crisk (C), Unit (U), Risk Council (R)*

Risks	Impact	Probability	Existing controls	Responsible	Existing monitoring procedures	Responsible	Remarks
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# Types of risk

## FINANCIAL

- Credit
- Market
- Portfolio Composition
- Liquidity

## UNDERWRITING

- Random fluctuation
- Change
- Error
- Portfolio balance
- Retrocession
- Pre-Financing

## OPERATIONAL

- Planning
- Reputation
- Legal / Regulatory
- Operational Control
- Taxation
- Fraud
- IT
- Human Resources

**> 60 individual risks**

# Types of risk

## Example: Underwriting

### UNDERWRITING

- Random fluctuation
- Change
- Error
- Portfolio balance
- Retrocession
- Pre-Financing

### RANDOM FLUCTUATION

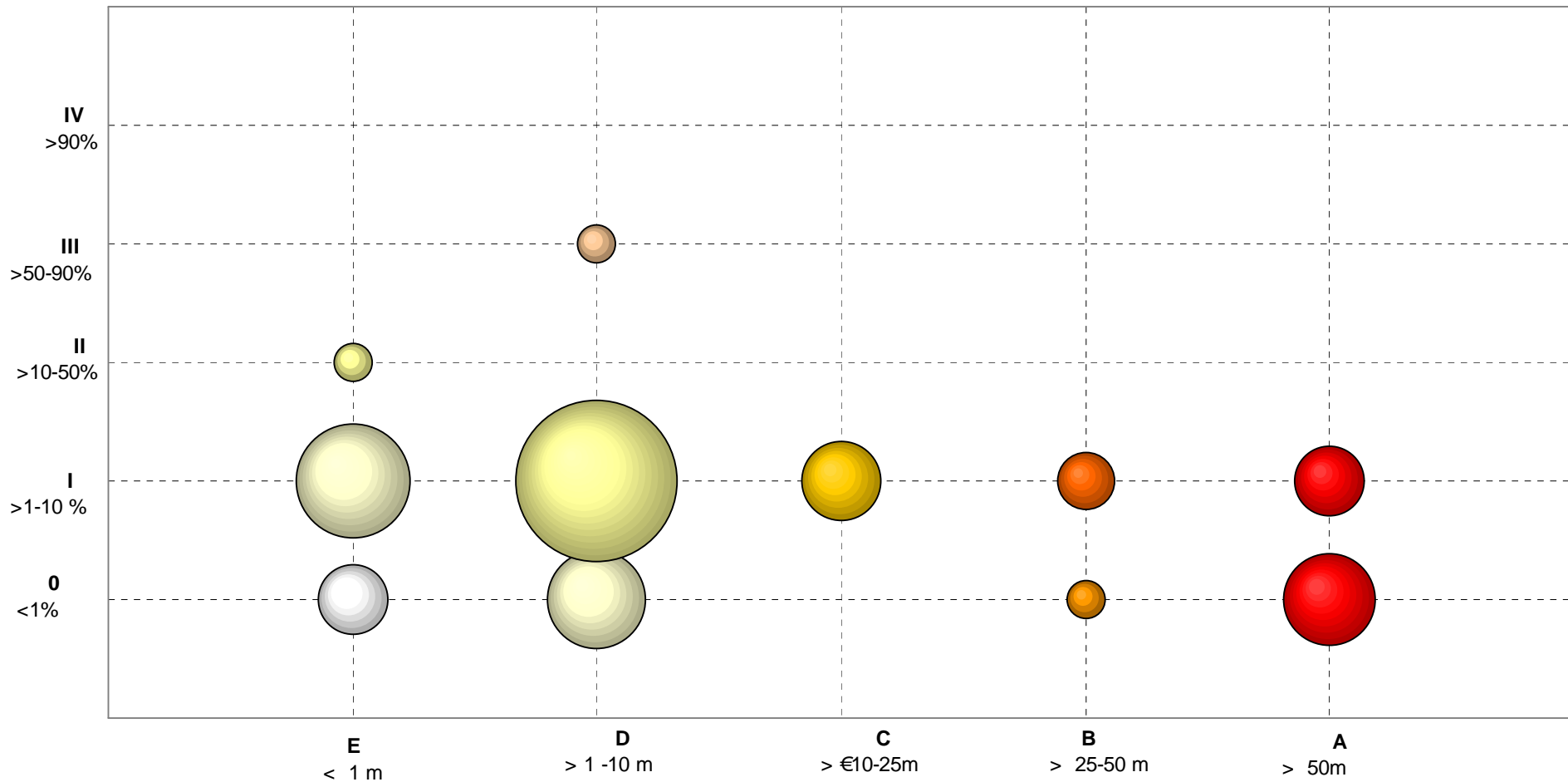
- Natural catastrophe
- Terrorism
- Accumulation (per risk)
- Accumulation (per country)
- Single catastrophic event
- Epidemics

### ERROR

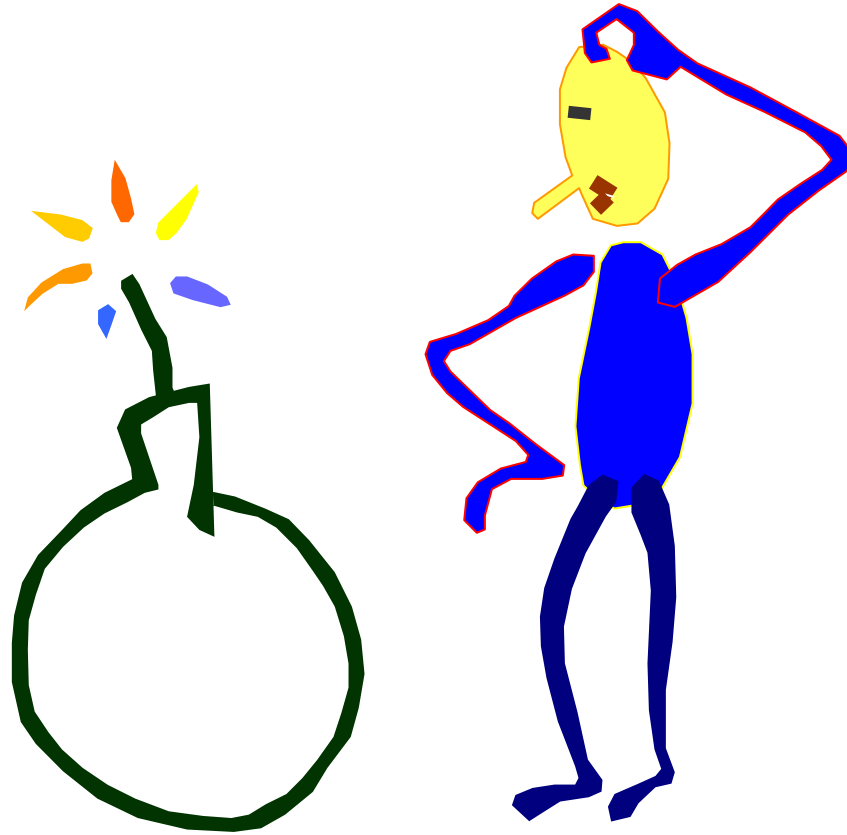
- Incorrect premiums
- Incorrect reserves
- PML miscalculation

# Annual risk report 2005 - 2006 [Life & Health]

## Number of risks by impact and probability



# Risks of biggest impact



# Risks of biggest impact

## Investment & financial risks\*

### Interest rate risk

Risk of loss resulting from changes in interest rates.

A I

U/W guidelines (no acceptance of investment risk beyond the technical interest rate); adequate treaty wordings; Asset-Liability- Matching.

AM, RCA, specialists

4- eyes- principle; referral underwriting; u/w reviews.

BUM, RCA, CUS-LH

## Underwriting risks

### Risk of random fluctuations

#### Natural Catastrophe risk

Risk of loss resulting from natural catastrophes including accumulation.

A 0

Fixing maximum net cat exposures per company and country; worst case scenarios in proportional business; event limits / exclusions / accumulation control in (proportional) group business.

AM, RCA

4- eyes- principle; referral underwriting; quarterly reporting of exposure; u/w reviews.

RCA, BUM , CUS-LH, responsible member of BoD

### Risk of change

Risk of loss resulting from changes in the basic environment or the risks themselves determined by e.g. nature, technology, economy, society, legislation and government.

A I

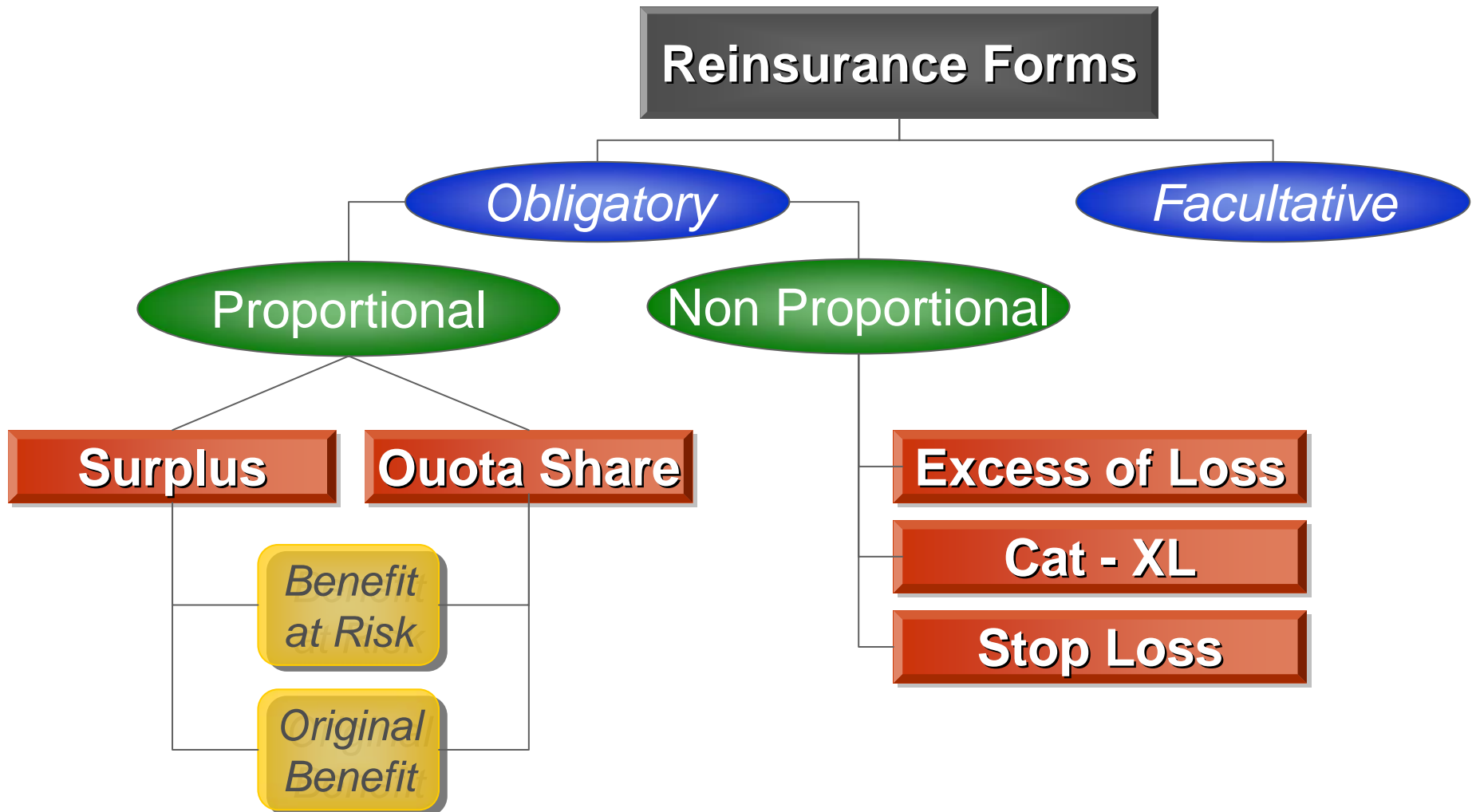
Continuous performance control; right to adjust premiums / conditions; right to cancel treaties; limitation of total exposure.

AM, RCA

Semi-annual performance review as part of the planning process; periodic reporting of exposure.

BUM, CUS-LH

# Risk Management via Reinsurance:



# Risk Management: Art. 43

- Insurance and reinsurance undertakings should have in place an effective risk management system comprising strategies, processes, and reporting procedures necessary to monitor manage, and report , on a continuous basis the risks, on an individual and aggregated level, to which they are or could be exposed, and their interdependencies.
- That risk management system shall be well integrated into the organizational structure of the insurance or reinsurance undertakings. It shall contain contingency plans
- ... It shall cover at least the following areas: underwriting and reserving ALM, investment [ derivatives and similar commitments] , liquidity and concentration risk management, and reinsurance and other risk mitigating techniques ...

*From: Proposal for a Directive of the European Parliament and of the Council on the taking-up and pursuit of the business of insurance And Reinsurance – Solvency II (10 July 2007)*

# Agenda

- Why?
- What?
- How?
- **Why does it work?**



# Five key success factors

**GIVE TOP PRIORITY AND COMMITMENT TO RISK MANAGEMENT**

**WELL DEFINED STRUCTURES AND CLEAR RESPONSIBILITIES ASSIGNMENTS**

**FULL INTEGRATION WITHIN THE BUSINESS PROCESS**

**RISK MANAGEMENT RESOURCES AND SKILLS HAVE TO BE BUILT UP**

**RULES ARE CLEARLY COMMUNICATED AND MONITORED**

# Risk management



**“Risk is the bow  
wave of success”**

*Jean Améry*

**... Always remember  
that clam seas never  
make skillful sailors  
... Just Sail !**