



# Investors' Day 2009

## Risk management

Rueschlikon

9 December 2009



## Risk management

### Agenda

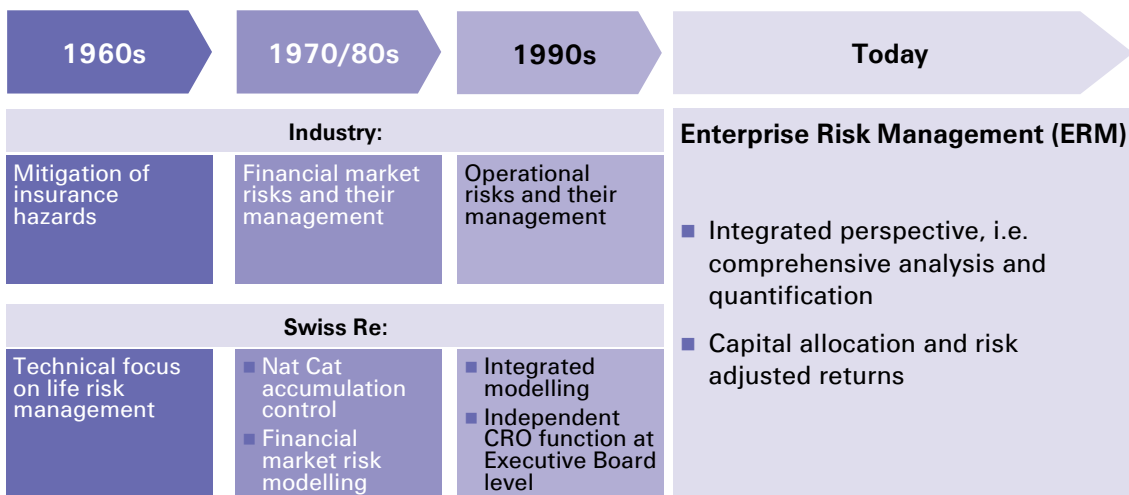
- **Risk management at Swiss Re**  
Raj Singh, Chief Risk Officer
- **Financial risk management**  
Kanwardeep Ahluwalia, Head Financial Risk Management
- **Questions & answers**

## Key messages

- Risk management is fully embedded in the business
- We pre-emptively ensure appropriate risk-reward balance in all risk-taking activities
- We proactively drive development of re/insurance risk management and regulation

## Evolution of risk management

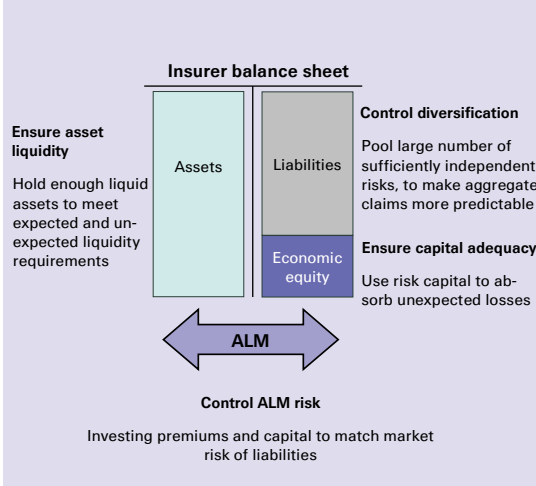
Swiss Re drives key developments in the industry



# Capital and liquidity risk management

A key focus during the crisis

## Four key control requirements of insurers ...



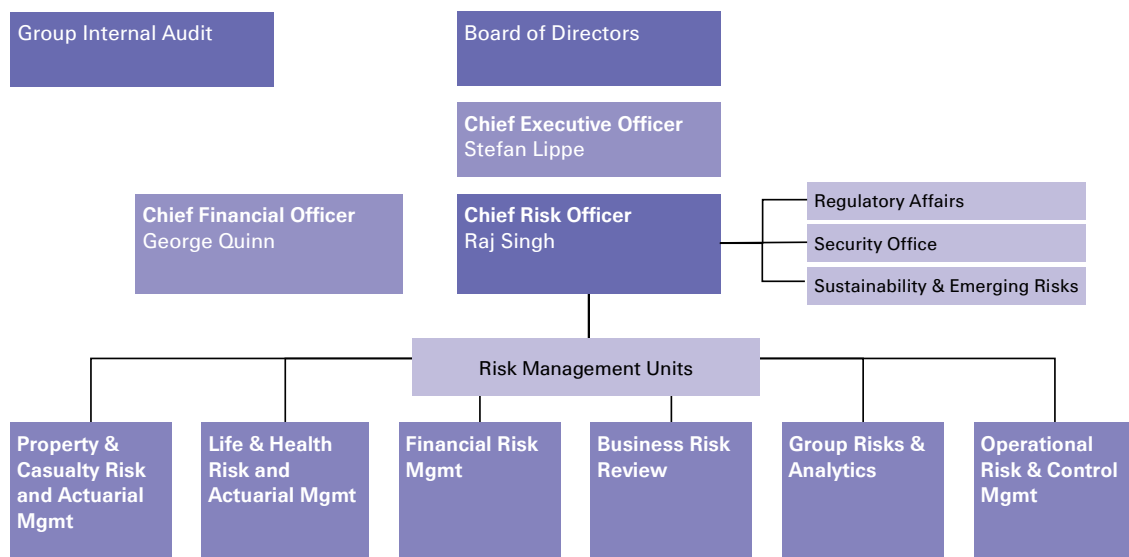
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## ... give rise to two key questions

- **Capital**
  - Sufficient capital to absorb unexpected losses?
  - **Capital adequacy framework**
- **Liquidity**
  - Sufficient spot liquidity and liquidity generation capabilities under stressed conditions?
  - **Liquidity stress testing framework consistent with capital view**

# Risk management function

Risk and actuarial functions combined in an independent division



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## Three pillars of risk management

Strong framework for disciplined risk taking

### Quantitative risk management

- Sound valuation and risk measurement
- Quantitative risk limit monitoring system
- Reliable capital adequacy framework

### Risk governance


- Clearly defined responsibilities for risk taking and risk mgmt
- Sound, documented:
  - risk mgmt policies
  - operating, reporting, limit monitoring, and control procedures
- Regulatory compliance
- Independent internal audits of processes and figures

### Risk Disclosure

- Financial and risk disclosure, including information on tail risk and scenarios
- Company risk culture
- Peer reviews


## Swiss Re's performance cycle


Risk management is embedded across the full cycle

- Group risk policy and tolerance 

- Reporting of changes in risk landscape 
- Limit monitoring
- Accumulation control
- Reserving
- Capital cost allocation



- Risk model input into optimization 
- Testing of risk tolerance
- Limit framework

- Part of all decision taking bodies concerned with risk taking 
- Large transaction approval



Strategy

## Group risk policy

Swiss Re's risk culture and risk management principles guide strategy

Swiss Re



### Swiss Re's risk culture

#### Risk strategy

##### Risk attitude

→ define basic areas of risk taking

##### Risk tolerance

→ limit risk to ensure continued operations following extreme loss event

##### Risk appetite

→ create shareholder value by optimizing risk-reward balance

#### Risk management principles

##### Controlled risk taking

→ clearly specified risk policy and risk control framework

##### Clear accountability

→ individuals held accountable for decisions

##### Independent risk controlling function

→ avoid conflicts of interest

##### Open risk culture

→ risk transparency at all levels

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Strategy

## Risk tolerance

Risk tolerance definition is basis for risk steering and limit setting

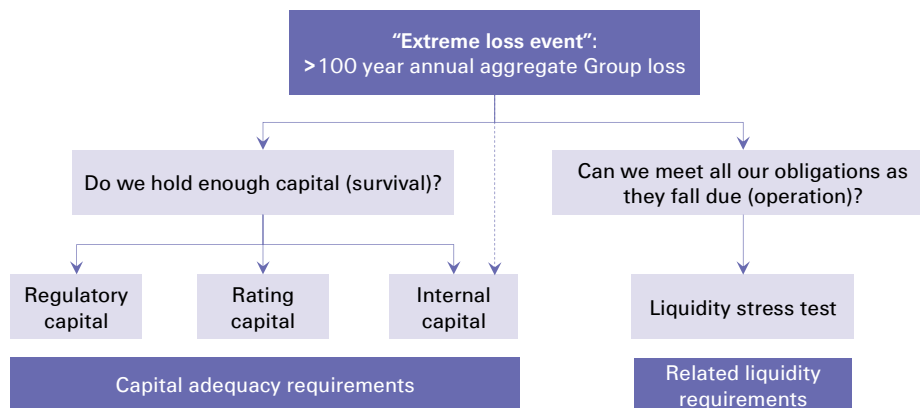
Swiss Re



### Swiss Re's risk tolerance:

"To be able to continue to operate following an extreme loss event."

The amount of risk we are willing to accept within the constraints imposed by capital resources, strategy and risk appetite, and the regulatory and rating agency environment



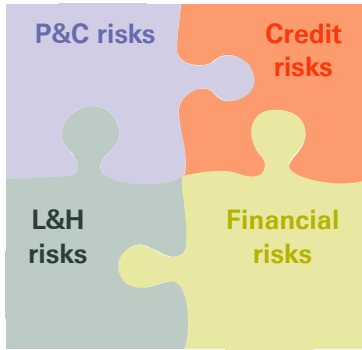
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Target setting

## Internal model

Leading-edge model continuously enhanced to reflect changing risk environment



### Time-tested expertise

- 15 years experience in integrated risk modelling
- Basis for reporting to Swiss supervisor
- Consideration of entity relationships and intra-group transactions
- Leading-edge pandemic risk model developed and integrated

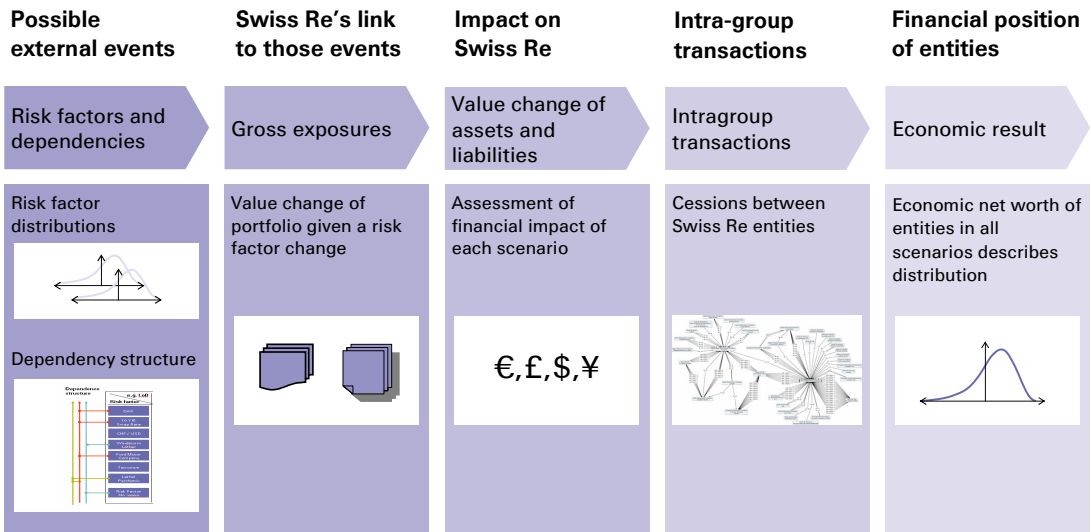
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Target setting

## Internal model structure

Capital assessment of entities based on full bottom up analysis consistent with Solvency II and Swiss Solvency Test



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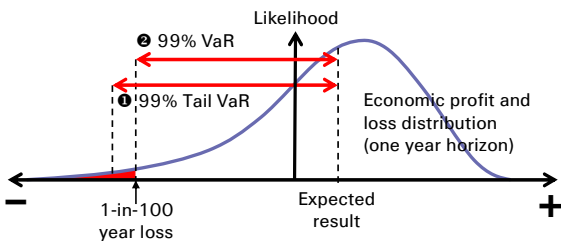


# Internal capital measure

Tail VaR capturing expected shortfall in case of severe losses appropriate for reinsurers

## Concept

- 1 **Tail VaR (expected shortfall)**  
 99% Tail VaR represents the difference between the expected result and the average adverse result with a frequency of less than once in one hundred years
- 2 **Value at Risk (VaR)**  
 99% VaR represents the difference between the expected result and an adverse result with a frequency of once in one hundred years



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## Application

Required capital at 99% VaR and Tail VaR as of 31 December 2008		
CHF bn	99% VaR	99% TVaR
Property and casualty	6.5	7.9
Life and health	2.4	5.2
Financial market	6.9	8.0
Credit	2.1	3.0
<b>Simple sum</b>	<b>17.9</b>	<b>24.0</b>
Diversification effect	-6.7	-9.1
<b>Swiss Re Group</b>	<b>11.2</b>	<b>14.9</b>

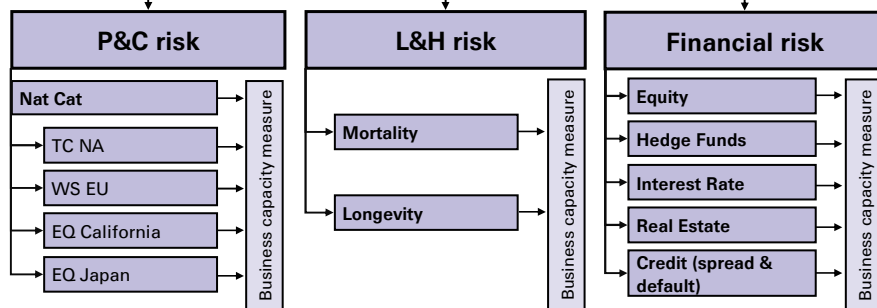


# Limit framework

Quantitative limit framework translates risk tolerance into defined risk appetite

- Available capital**
- Group risk tolerance**
- Annual Group Plan**
- Group Tail VaR of Plan**

- Actual situation from all capital perspectives
- Risk tolerance criteria of the Board
- Risk appetite derived by optimisation procedures
- Group Risk Model as basis for limit setting





Target setting

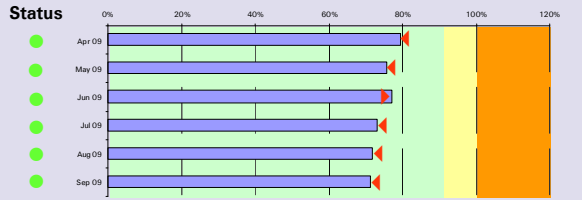
# Limit monitoring

Limits at all levels monitored on a monthly (P&C and L&H) or weekly (financial risk) basis

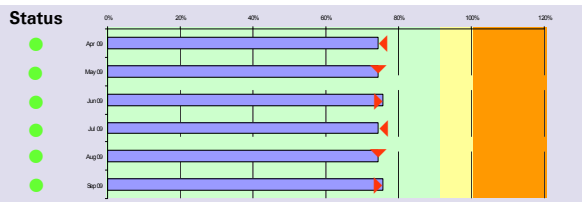


**Example of aggregate limit usage:**  
(April - September 2009)

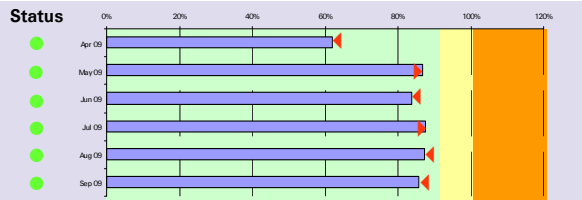
**Usage of aggregate P&C limit**



**Usage of aggregate L&H limit**



**Usage of aggregate financial risk limit**



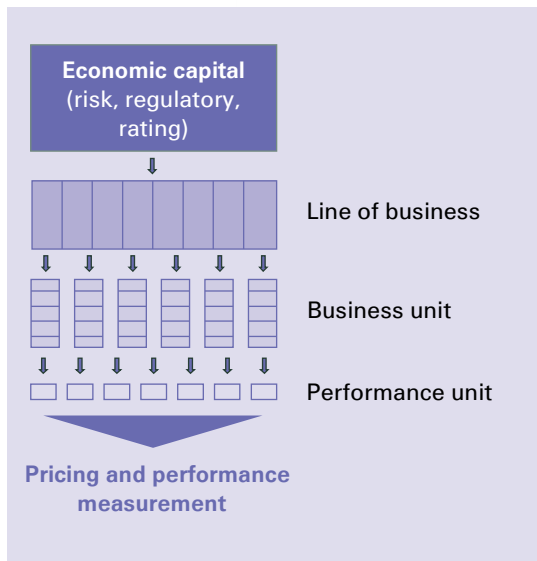
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Capital allocation

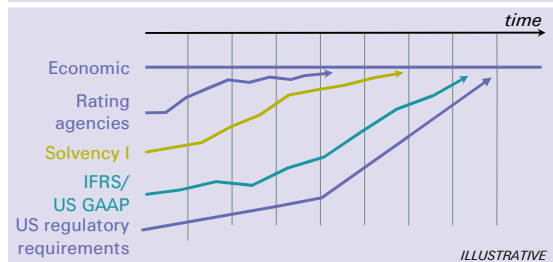
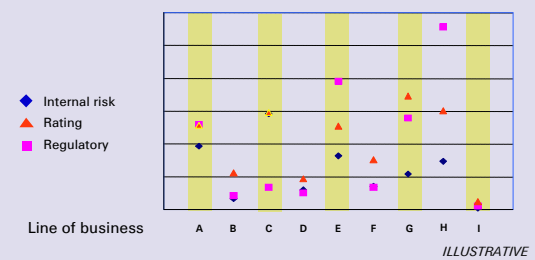
# Capital allocation

Reflects externally imposed constraints as well as internal model



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## Economic capital allocation to major lines of business



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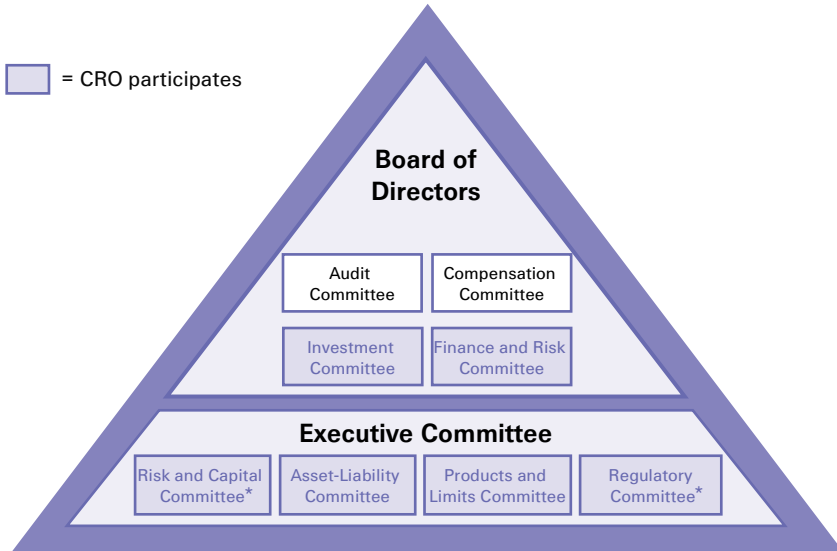


## Equal seat for risk management

Chief Risk Officer (CRO) participates in all Group committees concerned with risk taking



= CRO participates



\* chaired by CRO

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## Large transaction approval

Single group-wide approval process ensures proper balancing of risk and reward



- Approval body for large and strategic transactions
- One common formalised process (clear triggers and process steps)
- Three independent signatures (Client Markets, Products, Risk Mgmt)
- Dedicated large transaction team covers full risk spectrum

**Executive Committee**

**Large transaction process**

**P&C    L&H    AM**

➔ Risk management impacts business decisions through review and recommendation of large transactions

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## Independent risk reporting

Swiss Re



Provides transparent risk information for external stakeholders, and pre-emptive and actionable reports to internal decision makers

### External

Annual reports

Investor presentations

Client discussions

Reports to Regulators (eg SST Report) and Rating Agencies

### Internal

Executive Committee / Finance and Risk Committee Risk Updates

Capital Adequacy Dashboard

Liquidity Risk Report

P&C, L&H and ORM dashboards

Financial Risk Report

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## Emerging risk

Swiss Re



Swiss Re has a leading role in the industry debate on insurance related risk management topics

### Risk dialogue

#### Raising awareness



### Balance sheet protection

#### Limiting downside risk



### Product & services development

#### Enabling new business



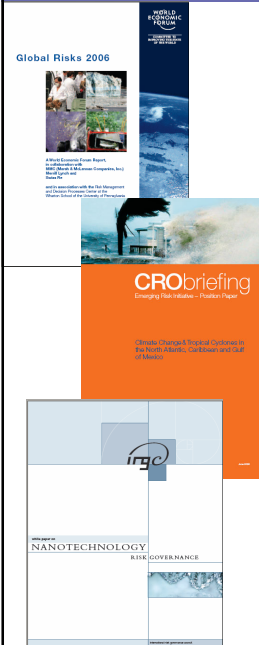
### Example: strategic priorities for climate change

- **Assess risk:** research collaborations with leading universities and membership/partner with NGO's
- **Influence business environment:** G8, WEF, Climate Week, member of Switzerland's climate delegation in Copenhagen, advocacy of a worldwide policy framework
- **Climate products:** weather risk transfer products, Climate Adaptation Development Programme, European Clean Energy Fund

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## Strategic partnerships

Swiss Re influences through a broad community



- Raise awareness and influence the prioritisation, communication and management of selected emerging risks
- Leverage expert knowledge

**World Economic Forum**

- Global Risk Report
- Annual update for Davos
- Project partner



**International Risk Governance Council**

- Risk governance projects, e.g. nanotechnology
- Project partner



**Chief Risk Officer Forum  
Emerging Risk Initiative**

- Position papers
- ER landscape for the insurance industry
- Key initiative partner



## Solvency II

Swiss Re taking an active part in shaping the new risk-based solvency regime

### Swiss Re's activities

- Active contributions to consultation papers
- Discussions with CEIOPS expert groups
- Support of negotiations with the EU
- Active participation in various industry bodies, eg



- Economic and Finance Committee
- Solvency II Steering Committee
- Reinsurance Advisory Board (RAB)



- Working group leads



- Solvency II working group

Groupe Consultatif



European Financial Services Roundtable



Pan European Insurance Forum

→ Swiss Re well prepared to assist clients and to create business opportunities generated by Solvency II

## Risk management at Swiss Re Summary

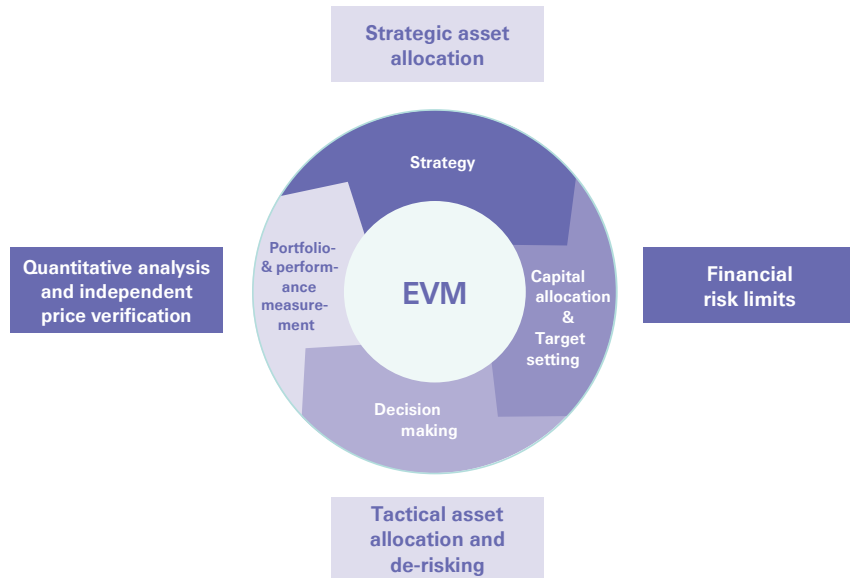
- Swiss Re's risk management well positioned to influence internal decisions and external developments
- Risk taking at Swiss Re is effectively controlled by
  - strong risk governance framework
  - clearly defined risk tolerance and derived consistent limit framework

## Risk management Agenda

- **Risk management at Swiss Re**  
Raj Singh, Chief Risk Officer
- **Financial risk management**  
Kanwardeep Ahluwalia, Head Financial Risk Management
- **Questions & answers**

## Swiss Re's performance cycle

Financial risk management participates throughout the cycle



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## Swiss Re's exposure to financial risk

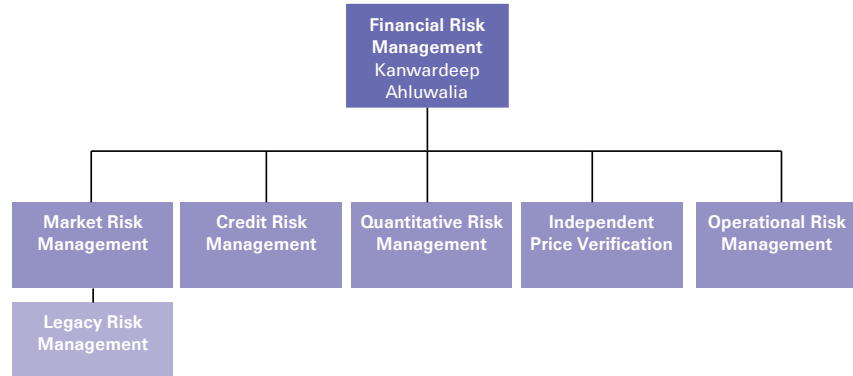
Risk management is embedded in all relevant areas

	Market Risk	Credit Risk	Model Risk	Valuation Risk
Asset Management	X	X	X	X
L&H (e.g. Longevity)	X	X	X	X
P&C (e.g. Credit & Surety)		X		
Treasury	X	X		
Admin Re	X	X		
Retrocession		X		
Legacy	X	X	X	X
<b>Operational Risk</b>				

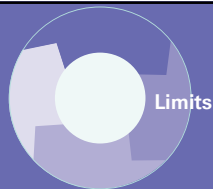
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## Financial risk management structure

Simple structure aligned to the risks being evaluated



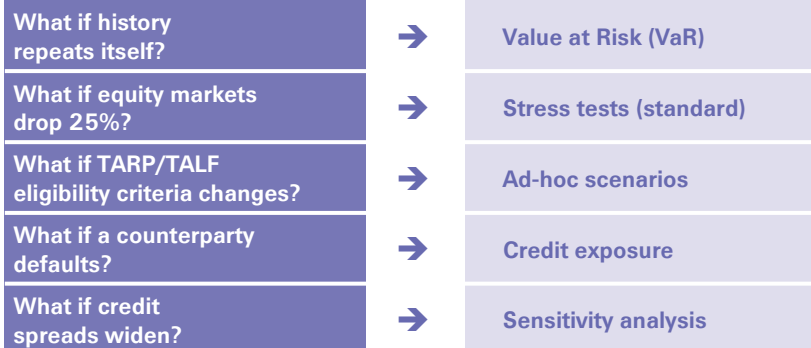
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## Financial risk analysis

A variety of measurement techniques are used

- Risk Management**
- identifies
  - measures
  - monitors
  - limits
  - reports
  - influences

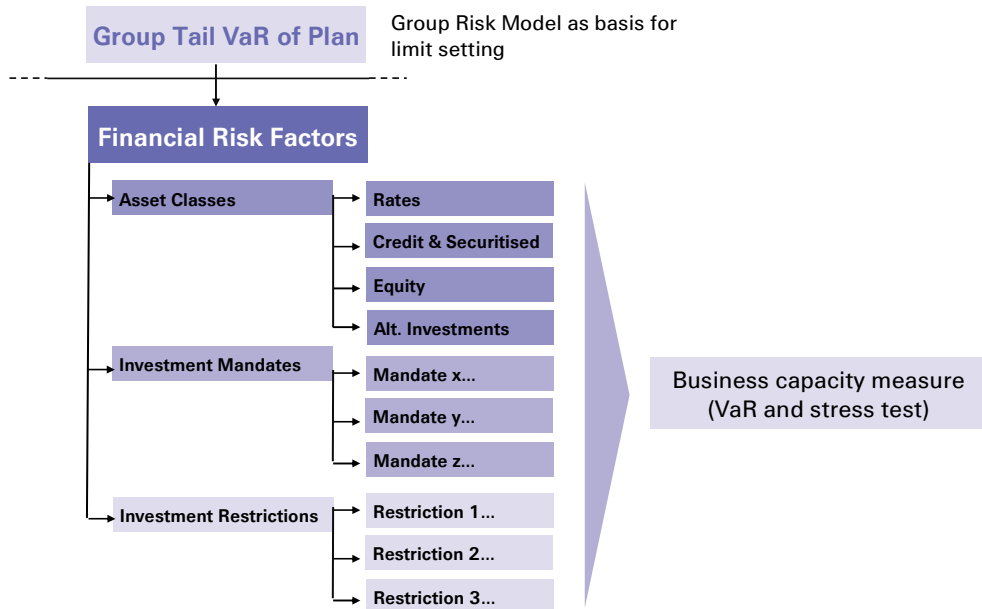


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# Financial risk limit framework

Limits are applied to alternative portfolio views

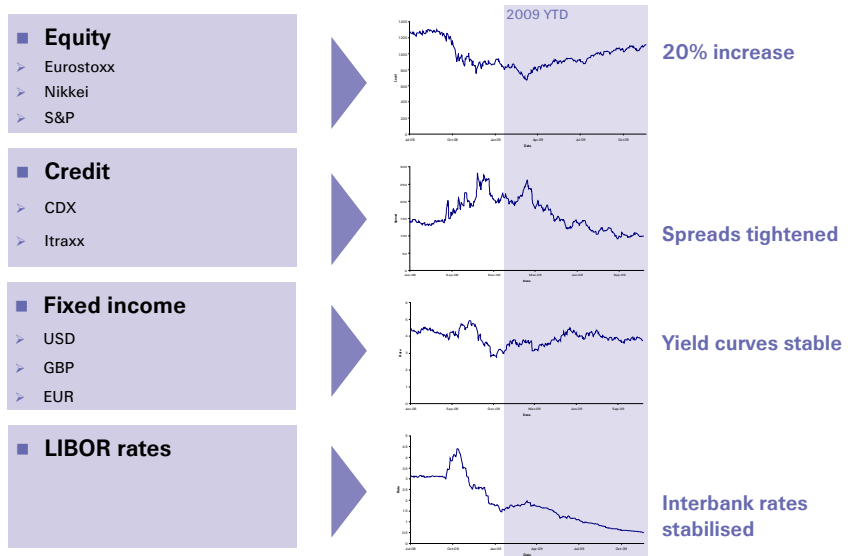


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# Market developments in 2009

Market conditions have improved but valuations remain fragile



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## Valuation challenges

Market uncertainty on prices requires multiple analysis techniques

Understanding the methods for valuing financial securities is an essential step in understanding their risks

Published prices



Are these reliable when traded volumes are thin?

Fundamental credit analysis



How different are market prices from fundamental values?

Model-based valuations



What risk is there with the choice of model?

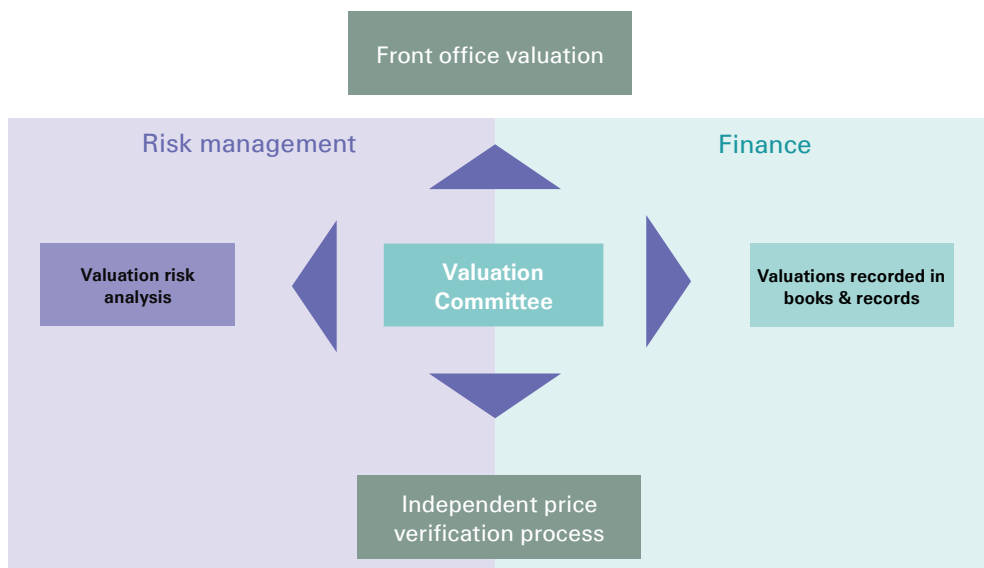
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## Valuation process

Risk management & Finance undertake an independent assessment of asset valuations



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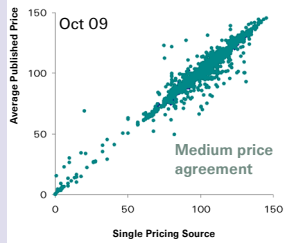




# Valuation analysis

Valuation uncertainty used as an indicator of risk

## Corporate bonds



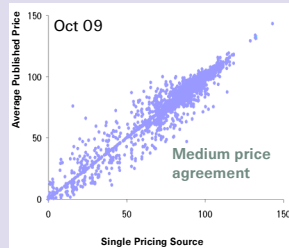
## Government bonds



## Security valuation uncertainty

- Multiple price sources are available for securities
- Prices from different sources do not align exactly
- Pricing differences are an indication of risk

## Securitised products (Mar vs Oct 09)



## Securitized products

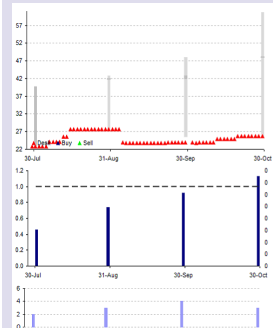
- Securitized products has highest disagreement in published prices
- Level of disagreement is reducing as trading conditions improve



# Fundamental credit analysis

Fundamental analysis used to discriminate between disparate price sources

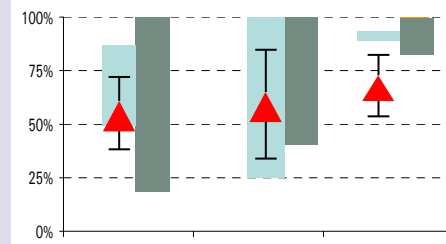
## Example: UK Buy To Let



ID: LEUC241 Cash / Exp: 0.4  
 Short Name: ALERN 5 M Issuer: ALERNE  
 ISIN: XS022780002  
 Comp: BCCOLSB09  
 CCY: GBP  
 Maturity: 20411201 00:00:00 Issue date: 20050923 01

### Quotes (GBP):

FT 25.71  
 REUT 48.00  
 MIPE 60.68



UK Buy To Let → Further security level analysis  
 US Alt. A → Higher risk of loss  
 US CMBS → Lower risk of loss

■ Risk management internal research  
 ■ External research  
 ▲ Average market price and range

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# Model analysis

Model valuations need strong governance and independent control



Model analysis

Complex trades analysis	▶	Trades are modelled in more than one way and calibrated using multiple techniques
Specific transactions analysis	▶	Deep dive analysis utilising product, market and modelling expertise within risk management
External consultant analysis	▶	External consultants engaged to ensure Swiss Re employ best model practices
Model valuation quantification	▶	Key element of risk management to enhance the quantification of model valuation uncertainty and feed into decision making process

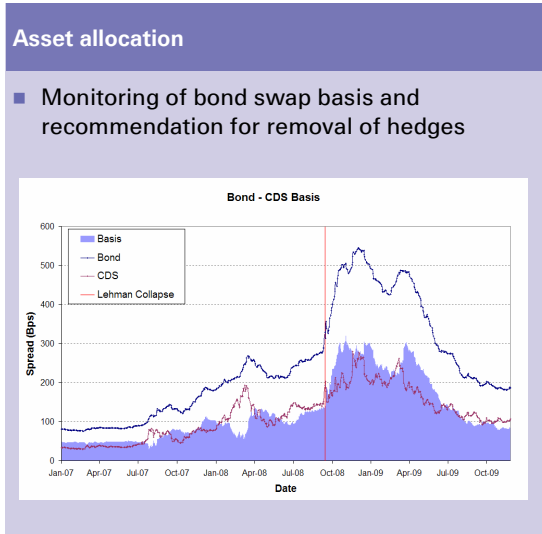
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# De-risking /asset allocation initiatives in 2009

Insights of risk management provided valuable basis for important decisions



- ### De-risking
- Fundamental analysis of securitised products portfolio:
    - pay-downs and net sales in AM and Legacy of more than CHF 12bn securitised products in first nine months 2009
  - Collaboration between Legacy front office and risk management:
    - successful disposal of lower quality SCDS holdings
  - Legacy front office, risk mgt. and external consultants reviewed FG Re's valuation reserves and methodology:
    - commutation with two counterparties during 2009



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## Key messages

- Risk management is fully embedded in the business
- We pre-emptively ensure appropriate risk-reward balance in all risk-taking activities
- We proactively drive development of re/insurance risk management and regulation

## Risk management Agenda

- **Risk management at Swiss Re**  
Raj Singh, Chief Risk Officer
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## Corporate calendar & contacts

### Corporate calendar

18 February 2010	<b>Annual results 2009</b>	Zurich
07 April 2010	<b>146th Ordinary Annual General Meeting</b>	Zurich
06 May 2010	<b>First quarter 2010 results</b>	Conference call
05 August 2010	<b>Second quarter 2010 results</b>	Conference call
04 November 2010	<b>Third quarter 2010 results</b>	Conference call

### Investor Relations contacts

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## Cautionary note on forward-looking statements

Certain statements and illustrations contained herein are forward-looking. These statements and illustrations provide current expectations of future events based on certain assumptions and include any statement that does not directly relate to a historical fact or current fact.

Forward-looking statements typically are identified by words or phrases such as "anticipate", "assume", "believe", "continue", "estimate", "expect", "foresee", "intend", "may increase" and "may fluctuate" and similar expressions or by future or conditional verbs such as "will", "should", "would" and "could". These forward-looking statements involve known and unknown risks, uncertainties and other factors, which may cause Swiss Re's actual results, performance, achievements or prospects to be materially different from any future results, performance, achievements or prospects expressed or implied by such statements. Such factors include, among others:

- further instability affecting the global financial system and developments related thereto;
- changes in global economic conditions;
- Swiss Re's ability to maintain sufficient liquidity and access to capital markets, including sufficient liquidity to cover potential recapture of reinsurance agreements, early calls of debt or debt-like arrangements and collateral calls under derivative contracts due to actual or perceived deterioration of Swiss Re's financial strength;
- the effect of market conditions, including the global equity and credit markets, and the level and volatility of equity prices, interest rates, credit spreads, currency values and other market indices, on Swiss Re's investment assets;
- changes in Swiss Re's investment result as a result of changes in its investment policy or the changed composition of its investment assets, and the impact of the timing of any such changes relative to changes in market conditions;
- uncertainties in valuing credit default swaps and other credit-related instruments;
- possible inability to realise amounts on sales of securities on Swiss Re's balance sheet equivalent to its mark-to-market values recorded for accounting purposes;
- the outcome of tax audits, the ability to realise tax loss carryforwards and the ability to realise deferred tax assets (including by reason of the mix of earnings in a jurisdiction or deemed change of control), which could negatively impact future earnings;
- the possibility that hedging arrangements may not be effective;
- the lowering or loss of one of the financial strength or other ratings of one or more companies in the Group;
- the cyclical nature of the reinsurance industry;
- uncertainties in estimating reserves;
- the frequency, severity and development of insured claim events;
- acts of terrorism and acts of war;
- mortality and morbidity experience;
- policy renewal and lapse rates;
- extraordinary events affecting Swiss Re's clients and other counterparties, such as bankruptcies, liquidations and other credit-related events;
- current, pending and future legislation and regulation affecting Swiss Re or its ceding companies, and regulatory or legal actions;
- changes in accounting standards;
- significant investments, acquisitions or dispositions, and any delays, unexpected costs or other issues experienced in connection with any such transactions, including, in the case of acquisitions, issues arising in connection with integrating acquired operations;
- changing levels of competition; and
- operational factors, including the efficacy of risk management and other internal procedures in managing the foregoing risks.

These factors are not exhaustive. Swiss Re operates in a continually changing environment and new risks emerge continually. Readers are cautioned not to place undue reliance on forward-looking statements. Swiss Re undertakes no obligation to publicly revise or update any forward-looking statements, whether as a result of new information, future events or otherwise.

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