European actuarial academy

an initiative of the 'Deutsche Aktuarvereinigung', the Dutch 'Actuarieel Genootschap', the 'Schweizerische Aktuarvereinigung' and the 'Aktuarvereinigung Österreichs'

Session 8

Reserves in an accounting framework

Agenda

- Introduction
- IFRS
  - Best estimate
  - Market Value Margin
- Solvency II
  - Purpose of reserve
  - Base for capital
  - Risk Margin
    - Percentile approach
    - Cost of capital approach
  - Qis4 results
- Other accounting principles
  - US GAAP
  - Local GAAP

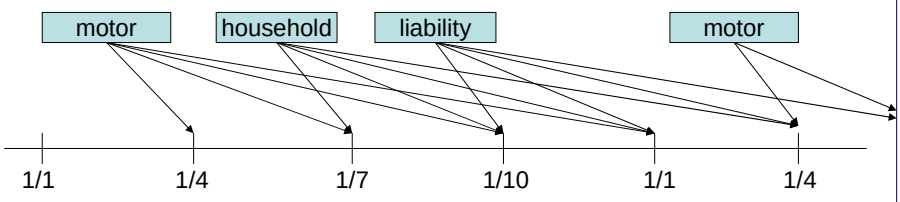
Introduction; data

- Data needs to be
  - Auditable
  - Reconstructable
  - Reliable
  - Complete
- The date paradox
  - Claim triangles two dimension
  - Data three dimension
    - Occurred date (e.g. date of claim occurrence)
    - Financial date (e.g. date of financial booking)
    - Closure date (e.g. date at which books are closed)

Introduction; process

- The process steps:
  - Data collection
  - Data analysis & cleaning
  - Model software
  - Model choice
  - Model parameters
  - Model validation
  - Summarizing & reporting
- All needs to be
  - Time efficient
  - Documented
  - Auditable

The continuous process of reserving



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IFRS: The European standard !?

- IFRS obligatory for European stock exchange listed insurers (but not for other)
- No real standard yet for insurance contracts
- Standard & Poor's pre IFRS phase 1 wish list for GI:
  - Loss reserves: get them right
  - Disclose:
    - Analysis of results by accident year
    - Ultimate loss ratios
    - Range of outcomes and level of conservatism
    - Duration
    - Credit quality of reinsurance

IFRS 4: Insurance contracts

- In short:
  - Use current practice or move towards Fair Value
- Fair Value undefined yet:
  Phase 2 needs to show some light on this

- What this probably will mean for reserves:
  - Best estimate
  - Discounted
  - Explicit valuation of inflation and guarantees
  - Additional risk margin
    - Percentile approach?
    - Cost of capital approach?

More explanations: Best estimate

- What is meant with “best estimate”
  - Mean?
  - Median?
  - Some random selected number?
  - With or without “management adjustments”?

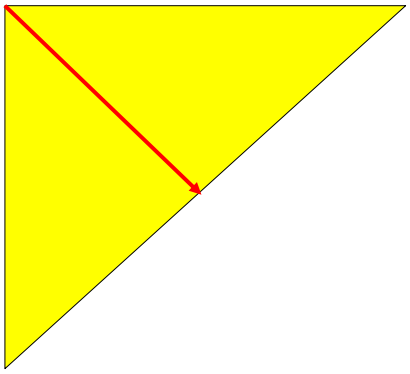
More explanations: Discounting

What if:

- You use a BF?
- You use a loss ratio method?
- You selected a tail factor of 5%?

Think of materiality impact

More explanations: Inflation



- Inflation trend not modeled:
  - Some part decomposed in development
- Implicit assumption: future inflation is similar as historic

Implicit inflation (3% per annum)

Cumulative paid data with inflation

	Ci1	Ci2	Ci3	Ci4	Ci5	Ci6	Ci7
i=1	266,354	321,223	355,132	374,341	374,341	374,341	374,341
i=2	254,390	306,795	339,181	357,527	357,527	357,527	
i=3	215,552	259,955	287,397	302,942	302,942		
i=4	432,316	521,373	576,410	607,588			
i=5	233,766	281,922	311,682				
i=6	194,388	234,432					
i=7	257,605						

Standard chainladder coefficients;

	Ci1-Ci2	Ci2-Ci3	Ci3-Ci4	Ci4-Ci5	Ci5-Ci6	Ci6-Ci7	Ci7-Ult
Incremental	1.206	1.106	1.054	1.000	1.000	1.000	1.000

Accounting year payments

j=8	94,673
j=9	46,814
j=10	18,578

Implicit inflation (3% per annum)

Cumulative paid data corrected for inflation

	Ci1	Ci2	Ci3	Ci4	Ci5	Ci6	Ci7
i=1	318,041	381,649	419,814	440,804	440,804	440,804	440,804
i=2	294,908	353,890	389,279	408,743	408,743	408,743	
i=3	242,605	291,126	320,239	336,251	336,251		
i=4	472,403	566,883	623,572	654,750			
i=5	248,002	297,603	327,363				
i=6	200,220	240,264					
i=7	257,605						

Standard chainladder coefficients;

	Ci1-Ci2	Ci2-Ci3	Ci3-Ci4	Ci4-Ci5	Ci5-Ci6	Ci6-Ci7	Ci7-Ult
Incremental	1.200	1.100	1.050	1.000	1.000	1.000	1.000

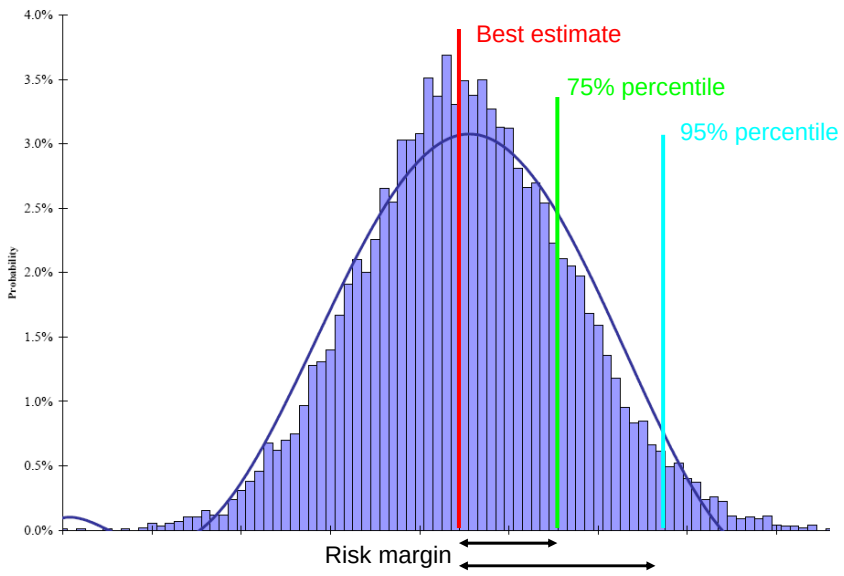
Accounting year payments

j=8	91,916
j=9	44,127
j=10	17,002

Accounting year payments with imposed inflation

j=8	94,673
j=9	46,814
j=10	18,578

Risk margin: Percentile approach



Risk margin: Cost of Capital

- Add a margin equal to the frictional costs of capital required for the risk:
  - You need to calculate the required capital in future
  - Calculate 6% of that capital each year
  - Calculate the discounted amount
  - Add this amount to the reserve

- 6% is reasonably arbitrary (from the SST)

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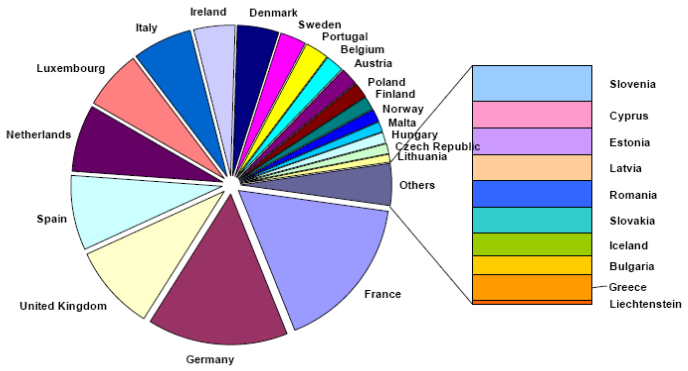
Solvency II

- It is not an accounting standard!
- It aims to coincide with IFRS
  But does it really?
- Reserves are calculated for restatement of balance to calculate the capital position
- What this probably will mean for reserves:
  - Best estimate
  - Discounted
  - Explicit valuation of inflation and guarantees
  - Additional risk margin
    - ~~Percentile approach?~~
    - Cost of capital approach

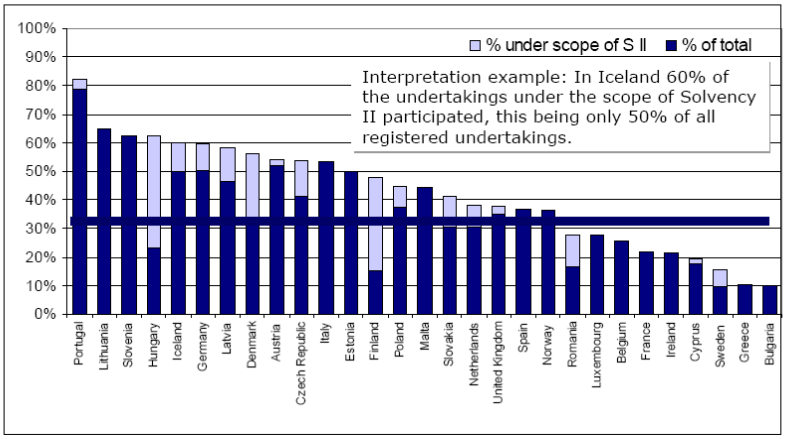
Solvency II

- QIS 4 results:
- See Ceiops website www.ceiops.org
- For non-life implications also see: www.solvency-2.com

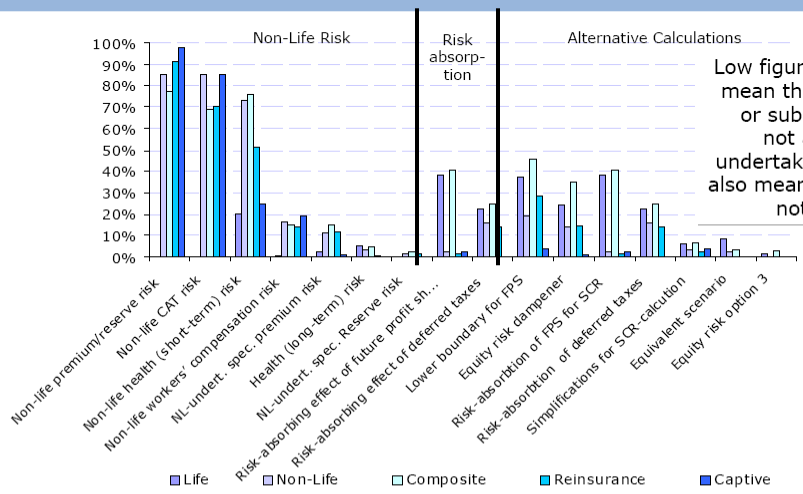
1412 Solo Participants



Participation rate: 33.6%



Completeness or applicability of calculations - SCR modules non-life, risk absorption, alternatives



Low figures need not mean that a module or submodule was not accepted by undertakings, it may also mean that it was not applicable.

Impact Trends (II)

↑ Life:

- Majority reports better solvency ratios for QIS4 compared to Solvency I. However, this is not an unanimous fact.

↓ Non-Life:

- The opposite is the case, a majority reports declining solvency ratios, with some declining capital surpluses too.

? Health:

- The diversity of and their yet insufficient recognition in the QIS4 specification of Health Insurance schemes across individual Member States does not allow to draw a conclusion here. Results from jurisdictions vary considerably regarding SCR coverage.

Technical Provisions - Liability valuation

New approach (best estimate + risk margin) agreed by most supervisors and undertakings…

…but difficult to assess consistency of methodology:

- occasionally wide variety of methods used
- doubt on consistency of application of Technical Specifications
- difficulties in valuation of liabilities

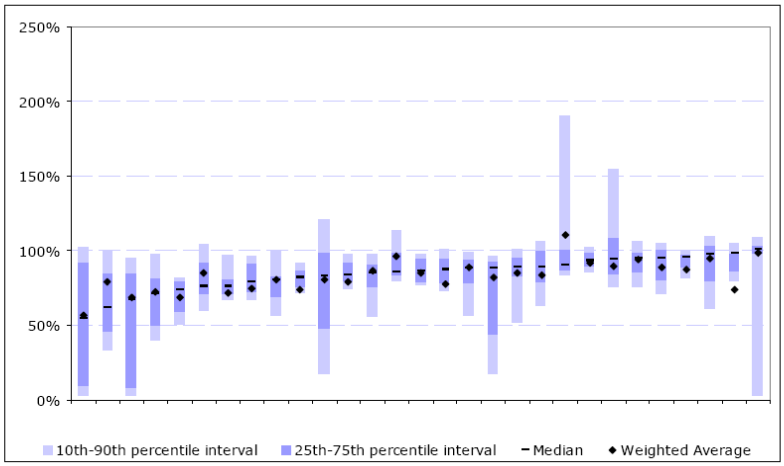
Technical Provisions: Difficulties in liability valuation

- Data requirements (splitting of data; data intensity of best estimate calculation)
- Small and medium sized companies (lack of data and resources for stochastic valuation)
- Insufficient guidance in the QIS4 Technical Specifications:
  - future premiums to be taken into account,
  - valuation of options and guarantees
  - calculation of future discretionary benefits
  - calculation of net technical provisions

Most difficult areas life / non-life

- *Life* firms
  - Valuation of future discretionary benefits
  - Valuation of options and guarantees (especially for smaller firms)
- *Non-life* firms
  - Segmentation by line of business
  - Need for substantial amounts of data
  - Calculation of net of reinsurance provisions
  - Assessment of premium provisions
  - Weight to place on future large claims

(Net) Technical Provisions non-life: QIS4 / Solvency I



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US Gaap

- Basic principle:
  - No safety or risk margins
  - No discounting