



**The Actuarial Profession**

making financial sense of the future

Reserving Seminar 2012  
Susan Dreksler

# SII Technical Provisions

## Current challenges for the reserving actuary and how to address them

21 June 2012

---

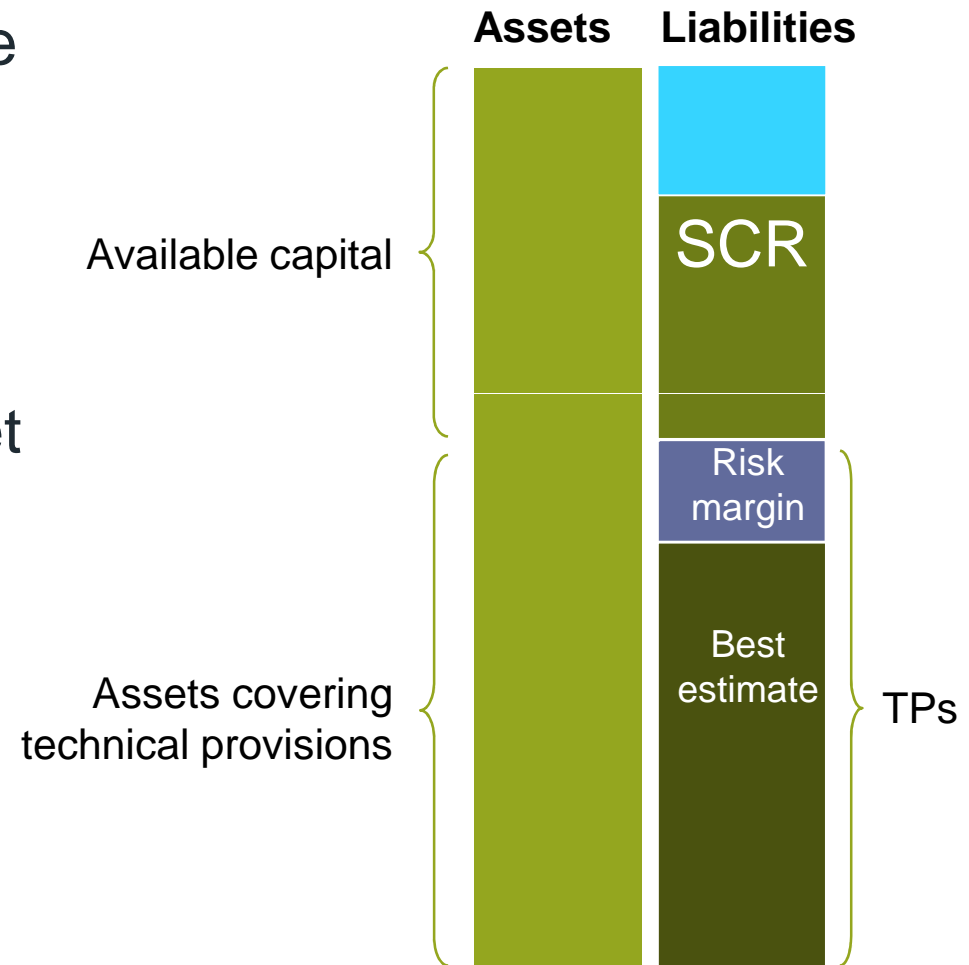
# Agenda

---

- Context
- Best estimate
- Premium provision: Loss ratio
- Contract boundaries
- PPOs
- Common themes

# Context

- The Technical Provisions are a key part of the Solvency Balance sheet
- ...and a key input into the SCR calculation
- The Solvency Balance Sheet is a key determinant of the (re)insurer's freedom to act
- ...and it is generally in your best interest to keep your regulator happy (or at least unconcerned)

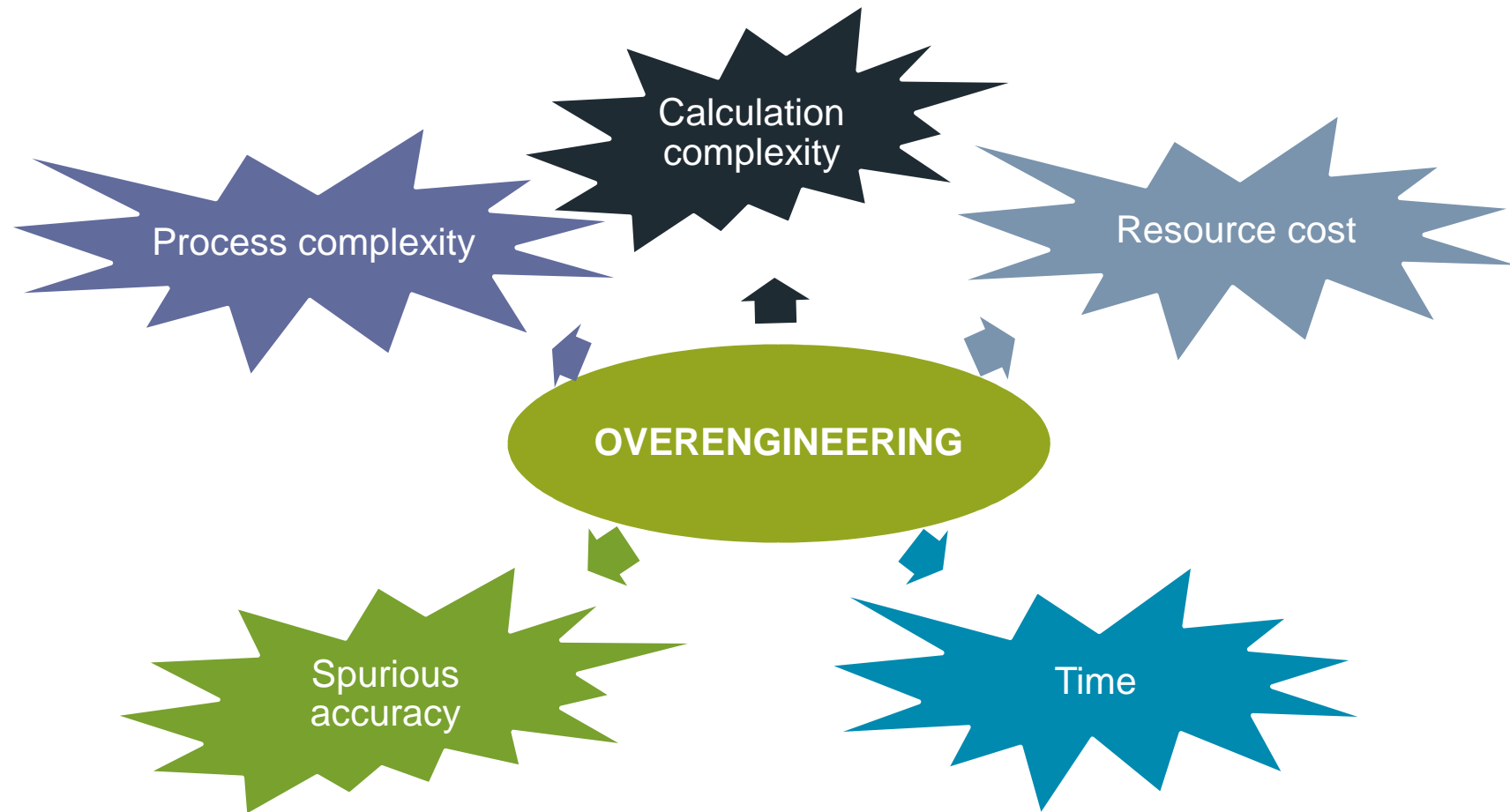


---

# Context

## ...but don't forget the other risk

---



---

# Best estimate

---

Why we need a best estimate?

Binary events

The need for consistency

---

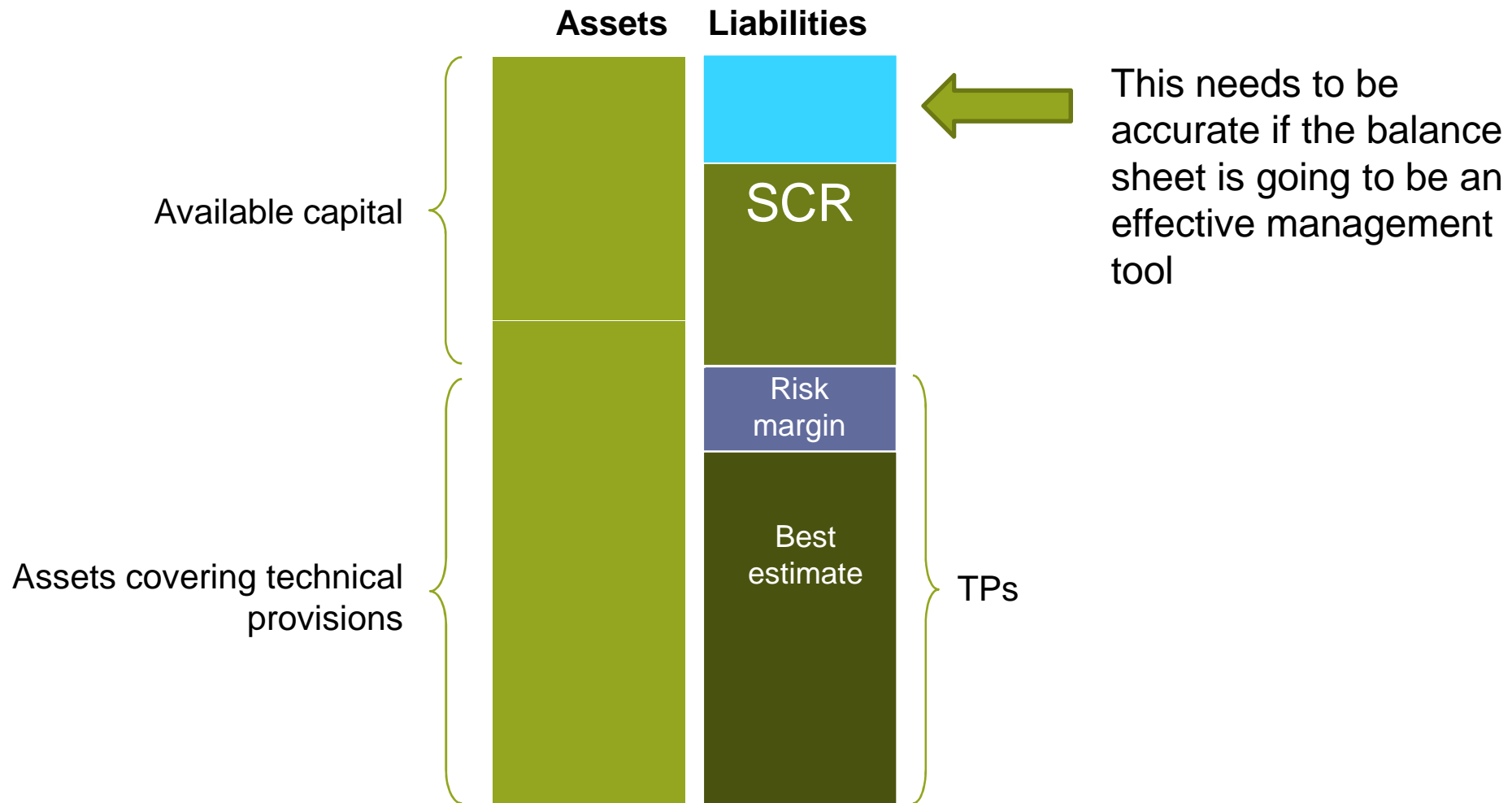
# Why we need a best estimate: The Solvency II Directive

---

- Article 76: “The value of technical provisions shall correspond to the **current amount** insurance and reinsurance undertakings would have to pay if they were to **transfer their insurance and reinsurance obligations immediately to another insurance or reinsurance undertaking**”
- Article 77(1): “The value of the technical provisions shall be equal to the **sum of a best estimate and a risk margin...**”
- Article 77(2): “The calculation of the best estimate shall be based upon **up-to-date and credible information** and **realistic assumptions** and be performed using **adequate, applicable and relevant actuarial and statistical methods.**”

Source: Directive 2009/138/EC

# Why we need a best estimate: The Solvency II balance sheet



---

# The best estimate requirement and binary events

---

- Article 77 (2): “The best estimate shall correspond to the probability-weighted average of future cash-flows, taking account of the time value of money (expected present value of future cash-flows), using the relevant risk-free interest rate term structure. .... The cash-flow projection used in the calculation of the best estimate shall take account of **all** the cash in- and out-flows required to settle the insurance and reinsurance obligations over the lifetime thereof.”



---

# Binary events

## Sue's (rather crude) definition

---

The difference between  
a true best estimate  
and  
what you've got

Not necessarily just high severity, low probability events

---

# Why binary events loadings should differ between entities and classes

---

- What *you've* “got so far” may be different. It could be reasonably foreseeable, actuarial best estimate (ABE) plus a management adjustment, ABE plus a margin or something else
- Binary events SHOULD differ between entities due to differences in
  - Volume of data and hence what may be missing!
  - Class of business: Exposure
  - Terms and conditions
  - What is and isn't currently allowed for: e.g. Ogden, reserve uncertainty

**...so use benchmarks with care!**

---

# Binary events

## How to deal with them

---

- Recognise that they exist!
- Understand your exposure: involve the exposure experts: underwriters, claims, pricing people, etc
- Look at past experience: what have you got, what has the industry got that can help you understand the probability and magnitude of unusual events
- Consider statistical techniques e.g. Truncated distribution for “unknown unknowns”
- Be prepared to justify your approach

Consider the commercial  
benefits

---

# Binary events

## Covering your back

---

- Meeting notes from workshops
- You should be able to explain
  - relativities between classes
  - different cut-off points in the truncated distribution
- Consistency with
  - similar exercises: e.g. Reverse Stress Testing
  - large loss models
  - capital modelling assumptions
  - pricing
  - accounts
  - the past

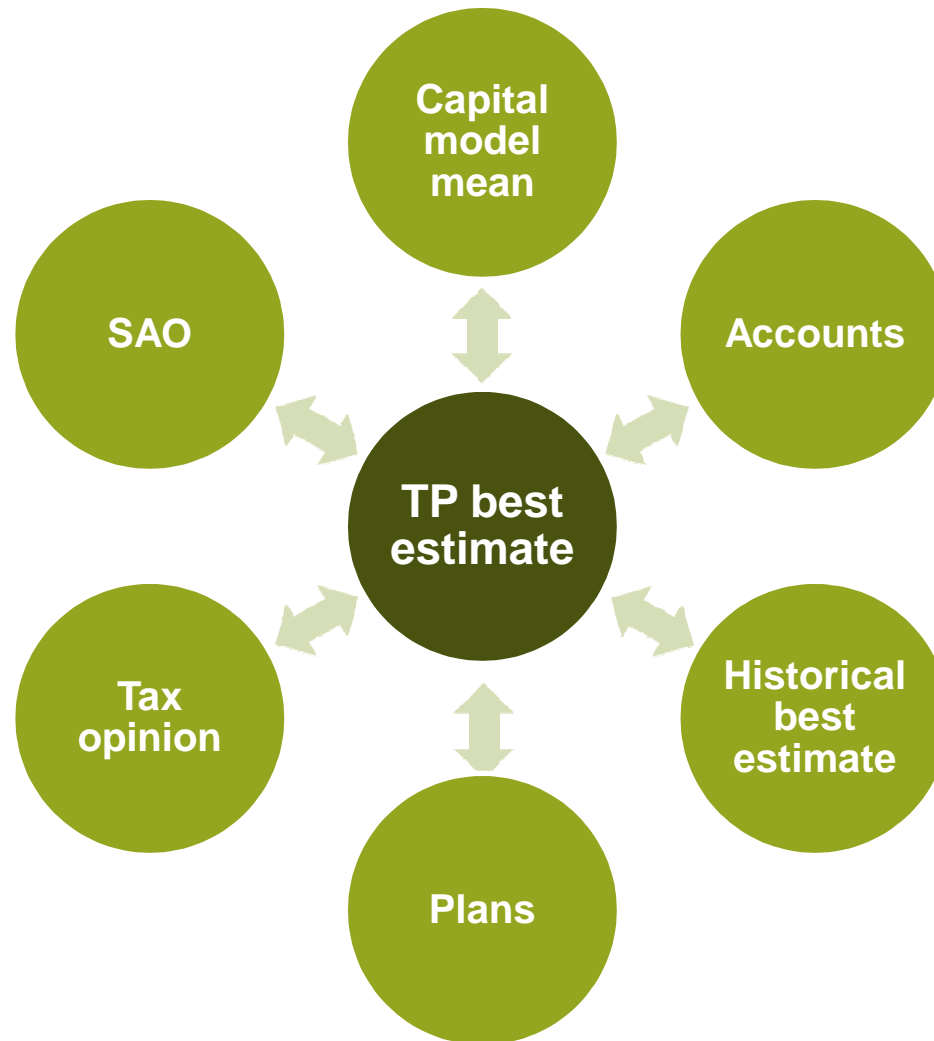


---

# Best estimate

## The need for consistency

---



---

## **Best estimate: The need for consistency with your accounts**

---

- The Board has responsibility for both balance sheets and will be expected to understand the difference
- Reconciliation of the SII and IFRS/GAAP balance sheets is an obvious check
- The SII balance sheet may be audited, and your auditor may well be interested anyway

---

# Consistency with the accounts

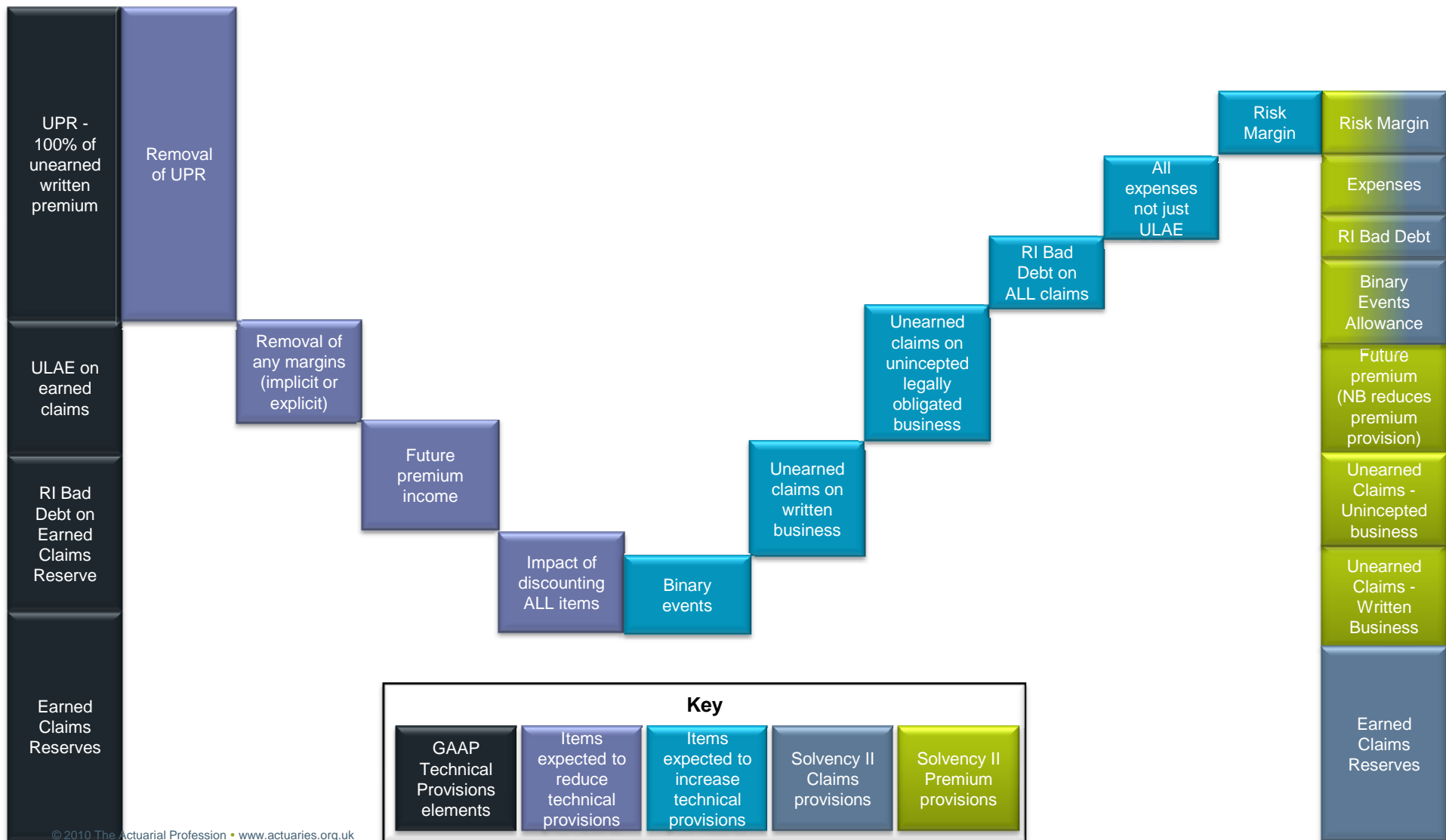
## How to make your life easier

---

- Be clear as to the breakdown of the claims reserves, and the underlying policy for setting reserves for the accounts
- Make sure there is agreement between all interested parties (reserving actuary, management, head office, etc)
- Make sure your assumptions are consistent!!
- Document the derivation of the SII TP claims provision based on its derivation from the booked reserves, for example,
  - Consider calculating discount factors to strip out the effect of discounting
  - Articulate and break down differences in the expenses
- Talk to your auditor: what would they like to see?

# Demonstrating consistency with your accounts

## The waterfall chart





---

# The waterfall chart

## Observations

---

- Transparent reconciliation between IFRS/GAAP provisions and Solvency II TPs
- Its creation can be a useful check
- As a communication tool, it has limitations:
  - Premium and claims provision split is not clearly shown
  - Does not mirror process
  - Example: Expenses
- A worthwhile tool, but be prepared to have to do more and still get a lot of questions! This should get better over time.

---

# Premium provision: Loss ratio selection

---

---

# Premium provision: Loss ratio selection

## The issues

---

- Best estimate of loss ratio relating to unexpired risk *that the entity is obligated to* as at the valuation date
- Makes sense to use available loss ratios
  - URR...*but is this available or reliable for what you regards as profitable business?*
  - Pricing loss ratios...*but do these correspond to the period of exposure you are considering?*
  - Loss ratio assumptions in the capital model...*but where did these come from?*
  - Plan loss ratios...*but are these really best estimate?*

---

# Premium provision: Loss ratio selection

## Possible approaches

---

### Purist approach

- Take past experience analysed by underwriting period (month/year/premium rating period?)
- Project forward for the underwriting period allowing for trends including inflation
- Adjust for seasonality
- Consider treating Written But Not Incepted (WBNI) separately, if large volume

# Premium provision: Loss ratio selection

## Possible approaches

### Practical approach: considerations

- Proportionality
- What do you already have available?
- What ought you to be consistent with?
- How does this fit into the bigger picture?
- AvsE
- How would investing in this help other processes? What is the business value in investing this time?



**Consider as part of the bigger picture**

---

# Contract boundaries

---

---

# Contract boundaries: Written but not incepted

---

- Need to allow for all business obligated to as the valuation date
- For some, this may be just a data issue
- Complexities arise where there are binders, and where business is not written uniformly over the year

---

## Contract boundaries: Binders/Partnership agreements

---

- Should only allow for the underlying insurance contracts written under the binder: the terms of the binder are not relevant *for this purpose*
- ...however, the terms of the binder are relevant if they restrict the ability of the insurer to re-price the risk



---

## Contract boundaries: The end of the contract (for valuation purposes)

---

The boundary of an insurance contract for valuation purposes is likely to be when the insurer has one of the following:

- a unilateral right to terminate the contract,
- a unilateral right to reject premiums payable under the contract, or
- a unilateral right to amend the premiums or the benefits payable under the contract in such a way that the premiums fully reflect the risks.

**The terms of binders/partnership agreements may affect this**

---

## Contract boundaries: Practical steps

---

- Examine the terms of your partnership/binder contracts to check for terms that limit the ability to re-price or cancel
- Think carefully about multi-year contracts:
  - Proportionality: can we do something approximate?
  - Their impact on the premium provision
  - Lapse assumption is important
  - Are they being allowed for properly in capital modelling?

**Consistency with the capital model is important**

---

# PPOs

---

---

# PPOs: Capital and reserving issues

---

- Uncertainty:
  - Proportion of claims that will become PPOs
  - Inflation linking
  - Future inflation
  - Life expectancy for this particular sort of impaired life
  - Variation orders
- Discount rate
  - Long term liabilities so discount factors will be significant
- Reinsurance default risk

---

# PPOs: Particular issues for SII Technical Provisions

---

## Discount rate

- Proposed matching premium only available
  - If you ring-fence the assets
  - Once the PPOs are in payment
- Sensitivity to changes in the discount rate
- **Expenses**
- Sudden drop when the PPO is approved: timing will be key

## Risk margin

- Is Approximation 3 valid, or even desirable?

---

# PPOs: potential approaches

---

- Consider whether you can do something approximate on the grounds of proportionality
- Inflation assumption: link it to the discount rate...*but we don't know whether this will be acceptable to regulators*
- Make sure you are consistent with the capital model: consider using a single model
- Think carefully about the assumptions underlying your risk margin calculation: an error in your risk margin can be a double whammy

---

# ...and to sum up

---

---

# Common themes

---

- SII TPs are an important part of SII,
- ...but there are wider business benefits to be gained from implementing the requirements well
- Consistency is important, with other parts of the calculation, with other functions and reserves produced for other purposes
- ...but especially with the capital model
- The successful reserving actuary will need strong communication skills as well as technical skills
- ...and will need to be pragmatic

**Make technical provisions work for you**



---

## Questions or comments?

---

Expressions of individual views by members of The Actuarial Profession and its staff are encouraged.

The views expressed in this presentation are those of the presenter and not necessarily those of her employer.

