Society of Actuaries in Ireland

The life stages of a PPO

20th September 2018

Disclaimer

The views expressed in this presentation are those of the presenter(s) and not necessarily of the Society of Actuaries in Ireland

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The end is nigh

Current Scene

Current Scene

- Background
  - – PPO Need
  - – Catastrophic injuries and Life Expectancy

- Current Scene
  - Interim PPOs
  - Real Rates of Return

Current Scene

- Process
  - – Section 51 CLA
  - – Court Decision

- How Likely?
  - Harmonised Index of Consumer Prices
  - Appeal

A new claim has been settled as PPO

- Road traffic accident
- Claimant of 25 years old
- Award:
  - Cost of care : 5m paid as PPO
  - Loss of earnings : 2m paid as lump sum
  - Other : 0.5m paid as lump sum

Which company process should be adapted?

- Practically, PPOs cause additional work streams
- Payment systems and protocols need to be established including application of inflation (sister life company can assist here!)
- For investments, asset profile for PPOs is needed
- Separate valuation of PPOs is required
- Solv II Risk Margin normally needs to be fully calculated as simplifications don’t work well
- Additional QRTs are required – Qtly & Annual

How much will that cost the company?

- Additional cost dependant on a number of factors
  - Investment return achievable
  - Inflation rate measure prescribed
  - Longevity-related: Age of claimant, expected lifetime, scope for living beyond expected lifetime, type of injury, updated medical reports (if any), etc
  - Expenses of paying /administering the claim including possible future legal costs
  - Cost of “buying-out” PPO liabilities with a specialist provider /reinsurer if beyond firm’s Risk Appetite
  - Complications arising from “Capitalisation” Clauses

Valuation

Valuation Bases

Solvency II

- Best estimate of discounted cashflows
  - Prescribed discount rate
- Risk Margin (Cost of Capital Method at 6%)

IFRS 4

- Life Insurance – discounted at gross redemption yield of assets backing liabilities
- Non-Life – undiscounted if term < 4 years

IFRS 17

- Present value of future cashflows
  - Flexibility over discount rate to use
- Risk adjustment
  - Different potential methods available (confidence level, conditional tail expectation etc)

PPO Elements

PPO Elements

Pure IBNR cases	Known Cases, Potential PPOs	Settled as PPOs, in Payment
1	2	3
Claims that have occurred by the valuation date but have not been reported to the insurance company	Claims that have been reported as large claims but it is not known whether they will ultimately settle as large	Claims that have settled and are in payment as PPOs

Valuation Techniques

1) Non-Life projected frequency methods
2) Non-Life propensity models
3) Life insurance discounted cashflow methods

   Feedback loop to case estimates for known PPOs

Valuation Techniques

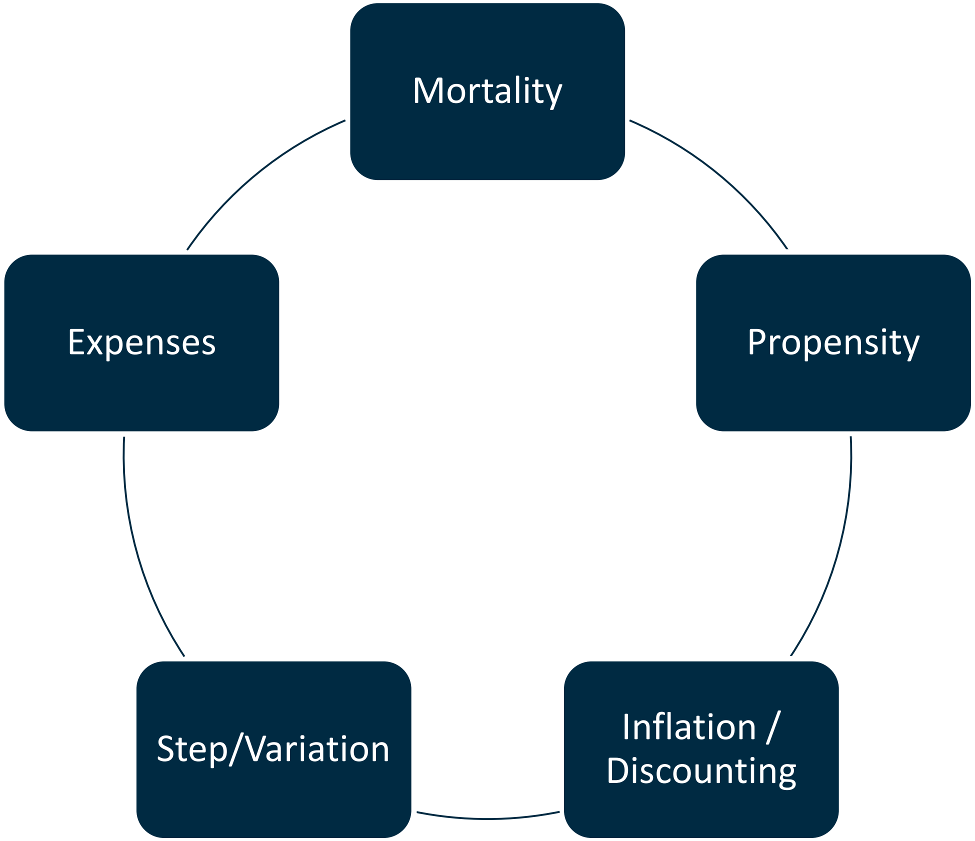
Non-Life Techniques

- Non-life techniques do not project an individual model point but project a group of claims (homogenous segment).
- The projections use historic claims trends as a basis for projecting future claims developments.
- Underlying assumption is that historic trends will repeat in the future.
- Various projection models are produced and compared to gain an understanding of the drivers of historic trends and to make adjustments to trends where necessary.

Life Insurance Techniques

- Projections done at each individual claimant level ("Model Points"). Information for each model point included in the projection algorithm (age, gender, PPO amount etc)
- Discounting future cashflows arising from present obligations
- Claims payments and expenses included within the projected cashflows

Key Assumptions



Other Valuation Considerations

Reserve Uncertainty

- Longevity Risk
- Inflation Risk
- Market Risk
- Counterparty default risk

Solvency II

- Events not in Data
- Risk Margin may need to be reassessed due to change in the run-off profile of SCR

Reinsurance

- Modelling of interaction of Indexation clause and deductible
- Capitalisation clauses

Propensity

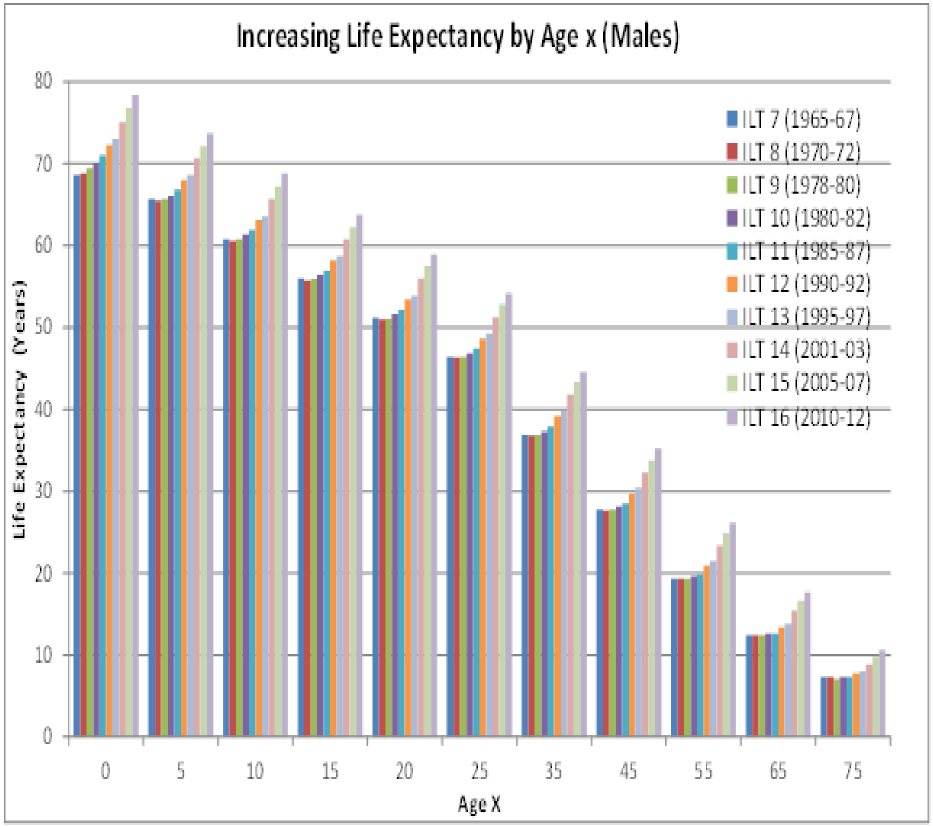
For what reason is this claim settled as PPO?

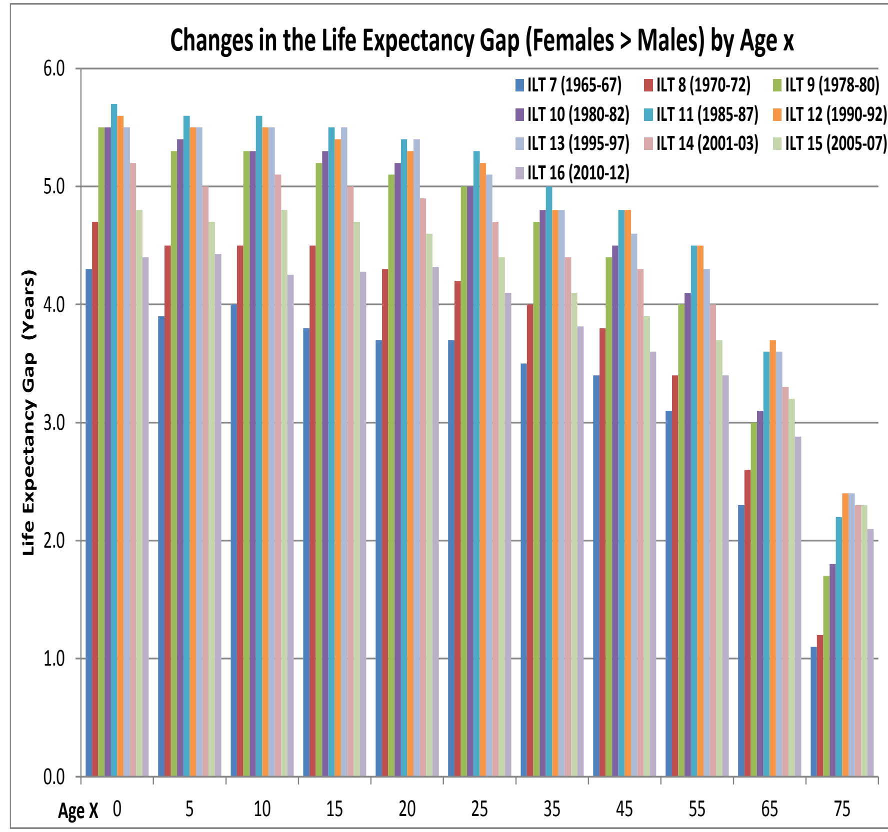
Factors affecting propensity:

- Severity of Injuries
- Relative economic assumptions between lump sum and PPO
- Claim value
- Claimant age
- Uncertainty around future life expectancy
- Insurer settlement process including valuation of claims prior to settlement
- Current court environment

Mortality

How long will that last in our book?





- Start with Irish Life Tables?

How long will that last in our book?

- Need to adjust population mortality when deriving assumptions around the mortality of seriously injured claimants
- Type of injury – brain or spinal
- Severity of injury is important factor, with higher tetraplegia cases having much higher mortality rates
- Impairment adjustment can revert back towards standard mortality at older ages - claimants likely to die from other causes.
- Improvement in immediate survival rates in first two years since catastrophic injury but limited evidence of improvement at longer duration since time of injury.

How long will that last in our book?

- Limited availability of UK and European country data
- UK experience suggests possible constant mortality multipliers of 300% for Males and 400% for Females might be suitable across a portfolio of potential PPO claimants.
- There is a body of work performed by a research and educational group, the “Life Expectancy Project” in the US including Professor David Strauss, Dr Robert Shavelle and Dr Jordan Brooks who have investigated life expectancy for various cohorts including Spinal Cord injury and Traumatic Brain Injury

Capital

PPO Capital – SCR Implications

- Calculation of SCR is forward looking for the following 12 month period – will PPO legislation be in place in 2019?
- PPOs typically contribute to a number of SCR modules including: Longevity Risk, Market Risk, Spread Risk, Counterparty Risk. What about an Internal Model approach?
- In some cases, the PPO risk diversifies quite well against a firm's SCR components (longevity risk will diversify well against non-life underwriting risk)
- Market risk will depend on the assets held to match the projected cashflows and how closely these assets protect against yield movements
- Spread risk will hinge on the credit quality & duration of assets
- Credit risk will arise where reinsurance recoveries are due; also where "overnight" cash is held on deposit to pay claims
- A significant market risk component may arise if a firm is mis-matched – this is less of an issue with low yields but will become more important if/when yields increase from historic lows

PPO Capital – Tech Provisions incl Risk Margin

- TPs for PPOs need to be calculated using life techniques and taking into account projected cashflows, expenses, margin for reinsurance default, etc.
- May be feasible to utilise Matching Adjustment (MA) to lower TPs
- Other items may also need to be taken into consideration – indexation clauses being applied by reinsurers, etc
- Risk Margin is calculated using the run-off profile for all outstanding liabilities including unexpired risks – typically, run-off profile of PPOs will be many times longer than standard claims
- This normally creates a risk margin for PPOs that is a much larger proportion of TPs compared to equivalent lump sums
- Variation Analysis on PPOs(?)

PPO Capital – ORSA

- Have you considered PPOs to date, potentially as an ENID? Does this drive a current capital requirement?
- Do you have a risk appetite for PPOs or for the component risks
- What additional scenarios can you consider within the ORSA (i.e. how sensitive is your balance sheet to PPOs)?
  - Impact of awards based on your own company's large case estimates
  - Impact of reversion of mortality assumption to Irish Life Tables
  - Impact of various future inflation rates
  - View over a 3 to 5 year period with new large case estimates assumed in the future
  - Impact of reinsurance default

Survey

Is the market expecting that first PPO?

In 2016 we ran a survey of actuaries in the major companies, these were the key points from then:

- Irish insurers expect less than 10 PPO per annum
- Wide range of approaches and sophistication to dealing with potential PPOs
- An explicit reserve is held for PPO claims
- HICP is expected to be similar to past or between 2% and 3%
- Reinsurance not tailored due to PPO and no capitalisation clause
- No change in investment strategy