How to deal with PPOs in practice

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Agenda

• Introduction
• Cash flows
• Practical investment solutions
PPOs settlement over the years

• Periodic Payment Orders (PPOs) are now more commonly used to settle catastrophic personal injury claims in the UK.

• The average size of the remaining elements currently of an agreed PPO is around £2m-£3m. Based on this figure, reserves for settled PPOs are estimated to around £0.6bn.

• The total size of the PPO reserves (including IBNR) in the market is approximately £3bn (assuming approx 10% of the total UK motor insurance reserves).

PPO share of reserves will continue to grow

• As PPOs are agreed in each future year the share of reserves related to PPOs (including those in payment) will continue to grow.

• A large share of the reserves will then become annuity reserves with more similarities to life company balance sheets – need to learn the lessons from these companies.

• Eventually a “steady state” position is likely to be reached as can be seen from the diagram.

• The size of PPO reserves is expected to reach between £5bn and £10bn eventually (in current money terms).

*Note: incremental projected numbers are based on an average of numbers of PPOs settled in 2010 and 2011.

Key assumptions:
- PPO propensity: 35%
- ASHE: 3.0%
- Discount rate: 2.5%
- Average life expectancy: 40 years
- Years when PPO settlements start: 5
Cash flows

- The following graph shows the expected PPO cash flows weighted by the mortality rates:

Key assumptions:
- Average age at settlement: 35
- Annual PPO payment: £78,202
- ASHE = RPI + 1%
- Source: 2012 PPO working party

Note: no lump sum at end of life
Assumptions which influence PPO reserves – all uncertain

<table>
<thead>
<tr>
<th>Uncertainties</th>
<th>Impact on Agreed PPOs</th>
<th>Impact on future PPOs</th>
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<tbody>
<tr>
<td><strong>Propensity</strong></td>
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<tr>
<td>• Currently appears relatively stable after original increasing trend.</td>
<td>No</td>
<td>Yes</td>
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<td>• Could be impacted by future court initiatives</td>
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<tr>
<td><strong>Mortality</strong></td>
<td></td>
<td></td>
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<tr>
<td>• Very little experience to date to determine future assumptions.</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>• Unclear how much impairment to mortality exists.</td>
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<td>• Small population of claims so variability relatively high.</td>
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<tr>
<td><strong>Indexation of PPO</strong></td>
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<tr>
<td>• Relatively little history of ASHE index used.</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>• Link to RPI is uncertain</td>
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<td></td>
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<tr>
<td><strong>Discount rate</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Risk free or based on assets held?</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>• Hard to reliably match with the other uncertainties</td>
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</tbody>
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Effect of real discount rate on size of PPO reserve estimate – potentially bigger impact than mortality

<table>
<thead>
<tr>
<th>Average life expectancy</th>
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<tbody>
<tr>
<td>30</td>
</tr>
<tr>
<td>-2%</td>
</tr>
<tr>
<td>-1%</td>
</tr>
<tr>
<td>0%</td>
</tr>
<tr>
<td>1%</td>
</tr>
<tr>
<td>2%</td>
</tr>
<tr>
<td>3%</td>
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</tbody>
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Net discount rate
ASHE versus RPI

- The chart below shows the comparison of historical ASHE and RPI over the years:

![ASHE versus RPI chart]

- From historical data, ASHE is observed to have a weak or negative correlation to RPI. This may due to:
  - The fact that both RPI and wages generally increase, leading to weak correlation, but not always to the same degree in the same period
  - A small sample size
  - Where future assumption has any short term matching implications, RPI could have a problem

- We have currently assumed ASHE = RPI +1% in our analysis
Agenda

- Introduction
- Cash flows
- Practical investment solutions

The Ideal PPO Investment

- Long term
- Amortising cash flows
- RPI linked
- Strong covenant
- Delivering illiquidity premium
- Favourable capital treatment
Option #1: UK Government IL bonds

- Large market (£300bn)
- Real yields zero or worse
  - Headed lower
- And one third of market redeems in next 5 years
  - Fiscal imperative
- Minus 2% real yield is a prudent assumption
- Poor cash flow match

Option #2: UK Corporate IL bonds

- Good real yields
- Respectable issuers
- Small market (£28bn)
- Very illiquid
- Can be part of the solution
- Poor cash flow match
Option #3: Infrastructure

- Attractive risk/return characteristics
- Matching cash flows
  - Long lived hard assets
  - Stable cash flows
- Reliable revenue streams
- Low correlation to other assets

Infrastructure market

- Government backed revenue streams
- Long term contracts
- RPI inflation linked
- Revenue streams out of
  - Roads, Hospitals, Schools, etc
- Direct and indirect access
- Illiquid but issuance growing
Opportunity set

- Social Infrastructure
  - PPP/PFI - availability payments
  - Higher yield, lower capital appreciation
- Utility type assets
  - Roads, tunnels, bridges
  - Higher capital appreciation, lower yield
- Assets under construction, unregulated utilities

Risk

Return

Accessing infrastructure

- Unlisted
  - Wide opportunity set
    - Several £trillion
    - No industry standard to assess performance
  - Lack of unit diversification
  - Expertise & resource
- Listed
  - Limited opportunity set
    - c. £400bn (depends on definition of infrastructure)
  - Liquidity
    - Market volatility
  - Transparency
Listed Infrastructure Performance

- DJ Brookfield Global Infrastructure
- S&P 500
- Barclays Global Agg. Corporate Bond
- RPI + 1%

Source: Bloomberg

4% yield

UK listed investment companies...

- 6 listed on LSE
  - C. £1.5bn
  - Invest directly in PPP/PFI equity
  - 5.2% yield
  - Target 7-8% IRR
  - Inflation protection
  - Government backed revenue streams
  - Beta 0.06
  - Correlation 0.12
  - Volatility 8%

Sources: Bloomberg, Kames Capital. Beta & Corr. vs. FTSE 100 using 2 years weekly data. 260 day annualised volatility.
Option #4: Unconstrained solution

- Real yield of 3% with risk 8-9% (absolute)
- Huge capacity (liquid and flexible)
- Capital charge an issue

Capital Treatment under Solvency II

- Where Solvency II calculations are based under an internal model the different true underlying risks of the assets held can be considered.
- For entities using the standard formula it is useful to understand how these different asset strategies would attract capital
- An optimal strategy can be determined once constraints are imposed on risk tolerance of the entity
## Capital Treatment of Investments under Solvency II

<table>
<thead>
<tr>
<th>Type of Investment</th>
<th>Capital Charge under SII Std Formula</th>
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<tbody>
<tr>
<td>Index linked government bonds</td>
<td>Seen as very secure and don’t attract concentration risk or spread risk. Interest rate shock</td>
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<tr>
<td></td>
<td>Credit is not really given for the fact that the assets and liabilities are matched with respect to inflation shocks in std formula – so no benefit beyond non-index linked bonds in std formula</td>
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<tr>
<td>UK corporate index linked bonds</td>
<td>Attract concentration risk and spread risk charges depending on rating of counterparty.</td>
</tr>
<tr>
<td>Infrastructure</td>
<td>No specific consideration of infrastructure bonds in standard formula – could be treated like equity (as below) or bonds (as above)</td>
</tr>
<tr>
<td>Real Estate</td>
<td>Attracts 25% capital charge</td>
</tr>
<tr>
<td>Equity</td>
<td>Attracts 30% capital charge</td>
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Expressions of individual views by members of the Institute and Faculty of Actuaries and its staff are encouraged.

The views expressed in this presentation are those of the presenter.