Institute and Faculty of Actuaries

How to deal with PPOs in practice

Harold Clarke
Alex Lee
Scott Jamieson

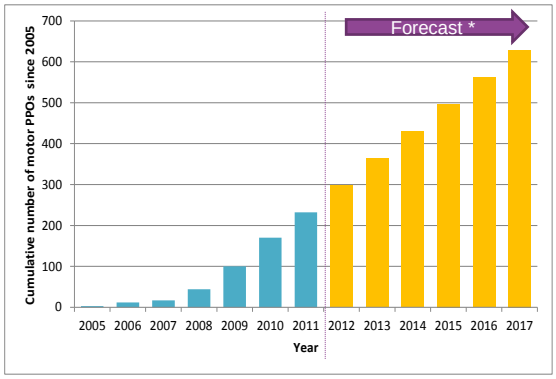
Institute and Faculty of Actuaries

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)

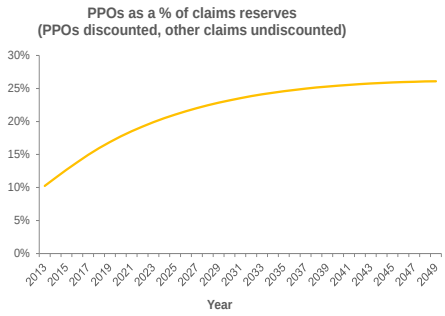


*Note: incremental projected numbers are based on an average of numbers of PPOs settled in 2010 and 2011.

3

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)



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

4

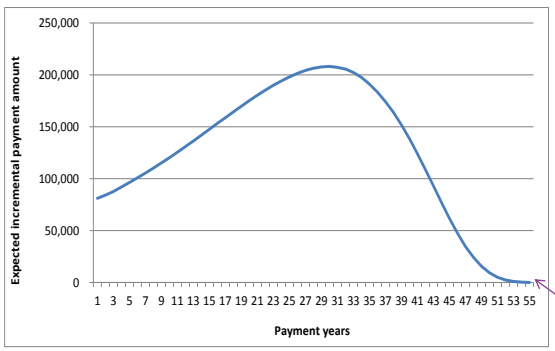
Institute and Faculty of Actuaries

Agenda

- Introduction
- **Cash flows**
- Practical investment solutions

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

Uncertainties		Impact on Agreed PPOs	Impact on future PPOs
Propensity	• Currently appears relatively stable after original increasing trend. • Could be impacted by future court initiatives	No	Yes
Mortality	• Very little experience to date to determine future assumptions. • Unclear how much impairment to mortality exists. • Small population of claims so variability relatively high.	Yes	Yes
Indexation of PPO	• Relatively little history of ASHE index used. • Link to RPI is uncertain	Yes	Yes
Discount rate	• Risk free or based on assets held? • Hard to reliably match with the other uncertainties	Yes	Yes

7

Effect of real discount rate on size of PPO reserve estimate – potentially bigger impact than mortality

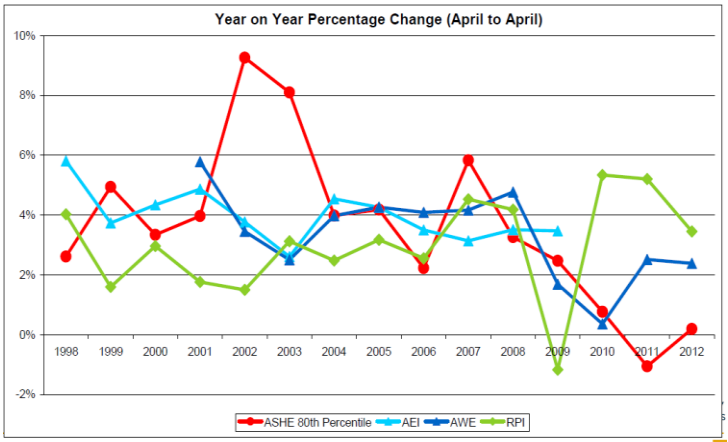
Average life expectancy

Net discount rate	30	35	40	45	50
-2%	2%	26%	52%	82%	114%
-1%	-13%	4%	22%	42%	62%
0%	-25%	-13%	**0%**	13%	25%
1%	-35%	-26%	-17%	-9%	-1%
2%	-43%	-36%	-30%	-25%	-20%
3%	-50%	-45%	-40%	-37%	-34%

8

ASHE versus RPI

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



9

ASHE versus RPI

- 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

Inflation period and ASHE indices	ASHE 80th percentile	Combined wage inflation*	RPI
644 + 6115	3.6%	3.6%	3.0%
644 + 6115 Exc. 2002	3.2%	3.6%	3.1%
6115 Only	3.0%	3.1%	3.3%
6115 Exc. 2003	2.4%	3.1%	3.3%
6115 2004 → 2009	3.7%	3.8%	2.6%

10

Institute and Faculty of Actuaries

Agenda

- Introduction
- Cash flows
- **Practical investment solutions**

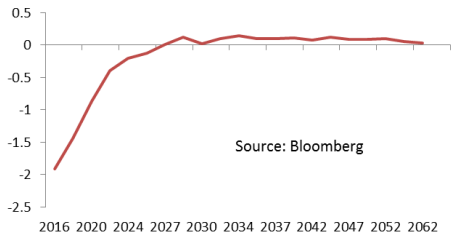
ertise
nsorship
Thought leadership
Progress
Community
Sessional Meetings
Education
Working parties
Volunteering
Research
Shaping the future
Networking
Professional support
Enterprise and risk
Learned society
Opportunity
International profile
Journals
Suppo

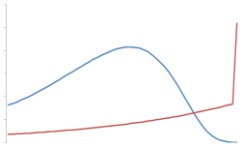
The Ideal PPO Investment

- 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

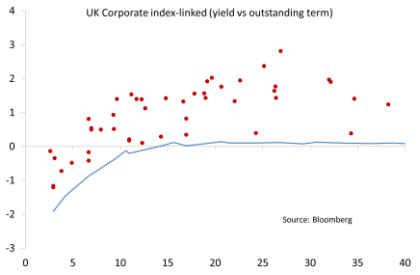


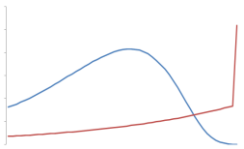


13

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





14

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

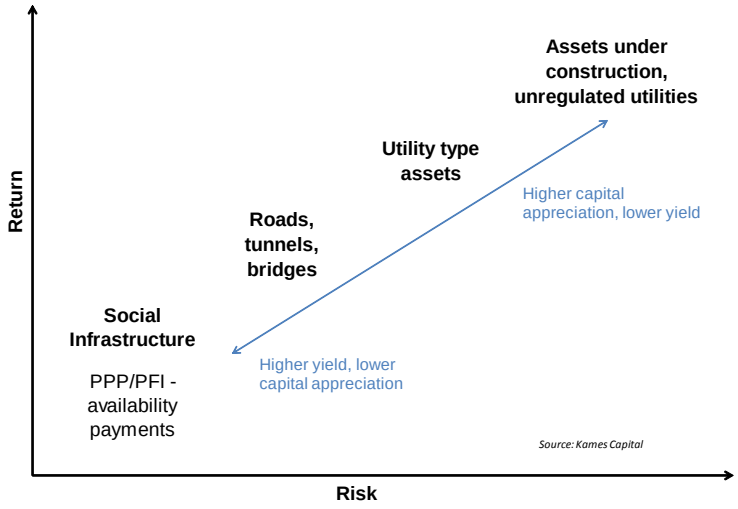
15

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

16

Opportunity set



17

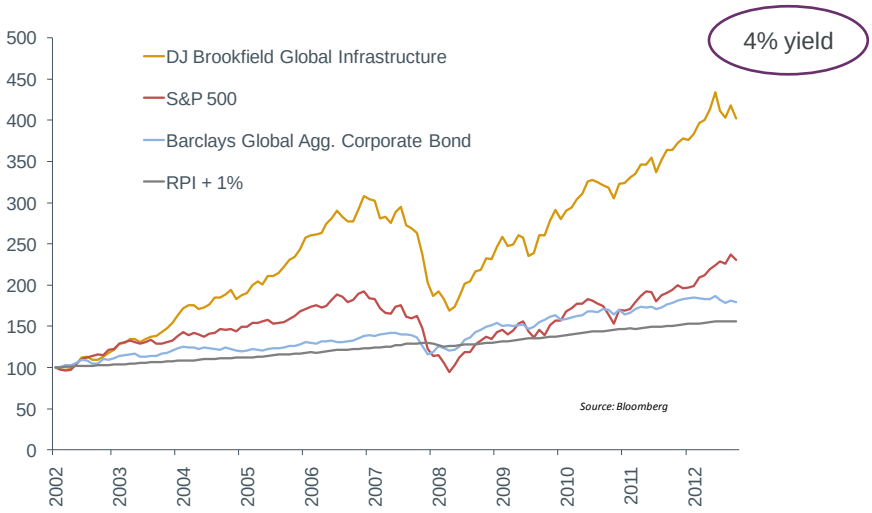
Accessing infrastructure

- 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

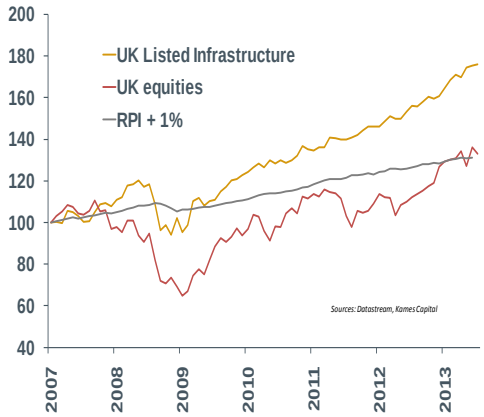
18

Listed Infrastructure Performance



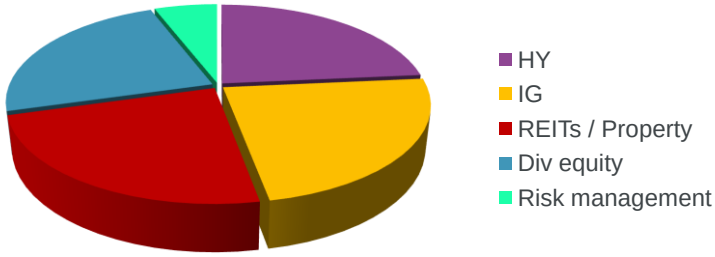
UK listed investment companies...

- 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

21

Capital Treatment under Solvency II

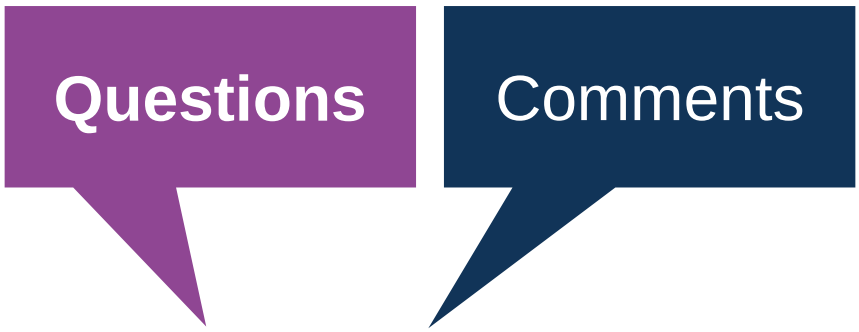
- Where Solvency II calculations are based under an internal model the different true underlying risks of the assets held can be considered.
- For entities using the standard formula it is useful to understand how these different asset strategies would attract capital
- An optimal strategy can be determined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

22

Capital Treatment of Investments under Solvency II

Type of Investment	Capital Charge under SII Std Formula
Index linked government bonds	Seen as very secure and don't attract concentration risk or spread risk. Interest rate shock 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
UK corporate index linked bonds	Attract concentration risk and spread risk charges depending on rating of counterparty.
Infrastructure	No specific consideration of infrastructure bonds in standard formula – could be treated like equity (as below) or bonds (as above)
Real Estate	Attracts 25% capital charge
Equity	Attracts 30% capital charge

23



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.

24