


GIRO 2010

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PPOs – be afraid, be very afraid

14 October 2010

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PPOs – be afraid, be very afraid



What is a PPO?

What is a PPO?

Features

- Predominantly a motor market and clinical negligence issue
- Periodical Payment Order (PPO) payments reflect the care needs of the claimant
 - Stepped PPOs reflect the ageing of key carers such as parents or spouses, or the increased care needs of the claimant as they age
 - Agreed minimum term where dependents are the recipients
- Routinely an annual or semi-annual payments, paid in advance, with a yearly indexation point
 - Future care payments for life are most common
 - Other heads of damage such as economic loss payments until retirement age can also be covered by a PPO
- PPOs provide a guaranteed regular income, reducing for the claimant the inflation and mortality risk associated with a lump sum settlement
- PPOs can include variation orders, so that if specifically allowed for circumstances arise in the future the order can be reviewed by the courts

What is a PPO?

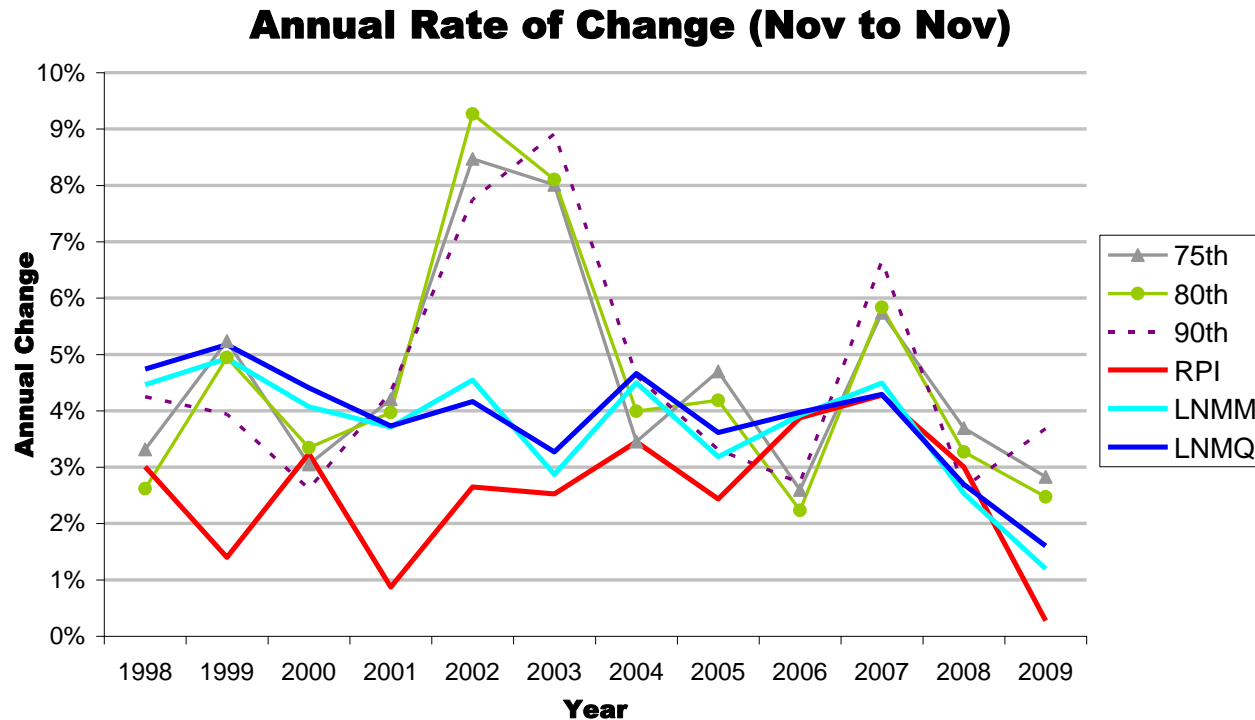
History

- Prior to Courts Act 2003, it was only possible for a claim to be settled via a structured settlement if both parties agreed and structured settlements were linked to RPI
- Courts Act gave the court the power to impose a PPO, with RPI being the index future payments were linked to. It also allowed for variability orders to be made
- *Thompstone vs Tameside and Glossop Acute Services NHS Trust* court case resulted in a different method of indexing the PPOs
 - Indexation can be linked to other indices or surveys that are considered by the court to better match the inflation inherent in the head of damage being covered.
 - The *Thompstone* case linked the inflation to the Annual Survey of Hours and Earnings (ASHE) Tables' 6115 sub-category (care assistants and home carers' salaries). It is common for care related PPOs to use this survey

What is ASHE?

- The Annual Survey of Hourly Earnings (ASHE) is a survey performed annually on April data by the Office of National Statistics, that surveys employee earnings across a broad range of professions. The survey provides information in a number of different formats, such as hourly wages, annual wages, comparisons of public or private sector, etc.
- It has existed since October 2004 when it replaced the National Earnings Survey. Historical versions back to 1998 on the new methodology.
- The method was changed in 2006, however the ONS produced the 2006 figures on both methodologies.
- Sub-code 6115 – care assistants and home carers – exists in the data back to 2002. Although there is a similar code for the 1998 to 2001 years (644 – care assistants and attendants) there is no cross-over information between the two.
- There have been a number of legislative changes that have had an impact on ASHE inflation that might not necessarily be repeated in the future:
 - the introduction of the minimum wage in 1999 caused particularly high inflation in the lower percentiles of ASHE 6115;
 - the Care Standards Act 2000 and the amendments to the Manual Handling Operations Regulations, which both came in during 2002, are likely to have been a contributing factor to the particularly high inflation in 2002 and 2003; and
 - in addition to the above the European Working Time Directive is likely to have caused increases in hourly wages

What is ASHE?



- The change in RPI and AEI matches the release date of ASHE, November.
- The 2001 to 2002 jump may be caused by moving from sub-code 613 to sub-code 6115.
- Most PPOs are fully linked, with no ceilings/floors. So negative ASHE inflation will cause a reduction in claimant payments.

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**Why are they an issue
now?**

Why are they an issue now?

Industry Experience

- There was a marked increase in claims settling via PPOs in Q2 2008 in the private and commercial motor markets
- This was followed by another jump in Q4 2008
 - Number of PPO claims in a calendar year / total motor premium income (£m) taken from the 2008 FSA returns

| 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---------|---------|---------|---------|---------|---------|
| 0.0000% | 0.0569% | 0.0995% | 0.0995% | 0.3697% | 0.6826% |

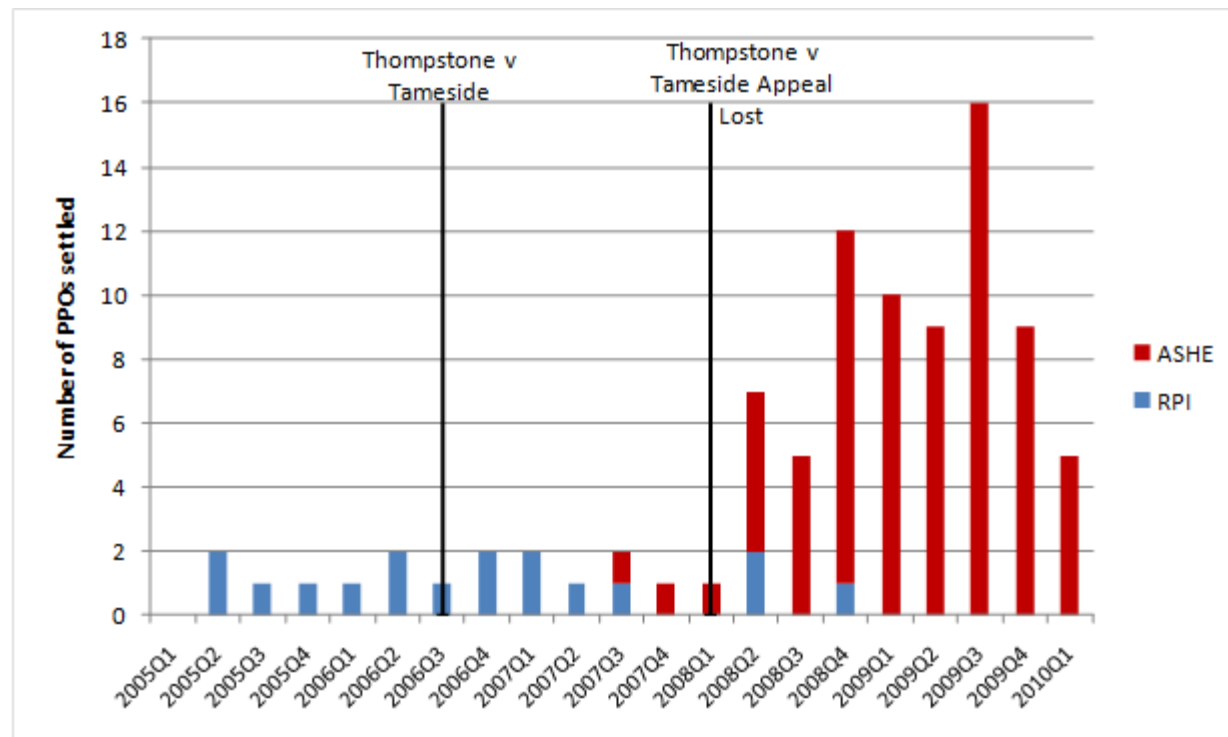
Why are they an issue now?

Reasons for increase

- The exact reason for the increase is unknown, as there were two “events” in 2008 that made PPOs more attractive
 - The appeal to the Thompsonstone case was finalised in early 2008, making it certain that PPOs could be linked to indices other than RPI
 - The world credit crisis led to a large fall in stocks across the world, driving down investment returns and providing a stark reminder of the risk of the investment market

Industry experience

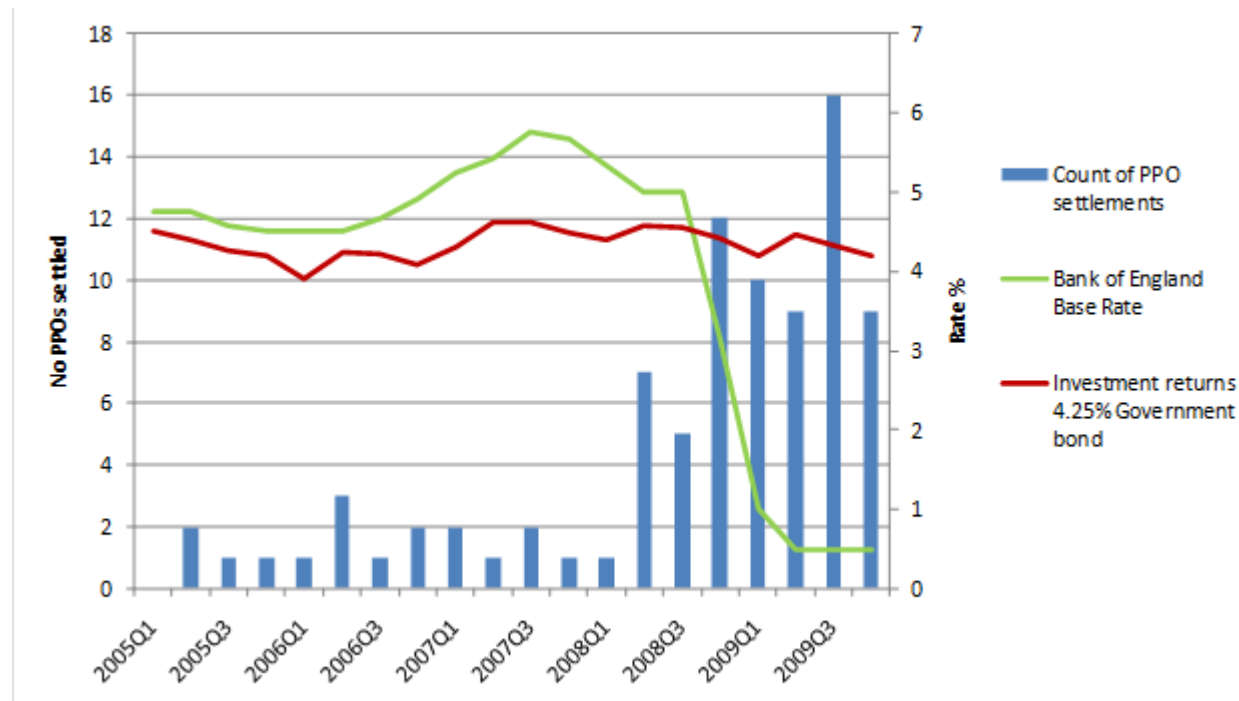
- The following chart shows the number of claims settling with a PPO, split between those linked to RPI or ASHE



- Data is from an industry experience analysis performed in early 2010. Thanks to RBS, Allianz Insurance, CFS Zurich Insurance, Aviva, RSA, NFU Mutual, esure, Liverpool Victoria/Highway for providing data.

Industry experience

- The following chart shows the change in the Bank of England base rate and the number of claims settling as PPOs

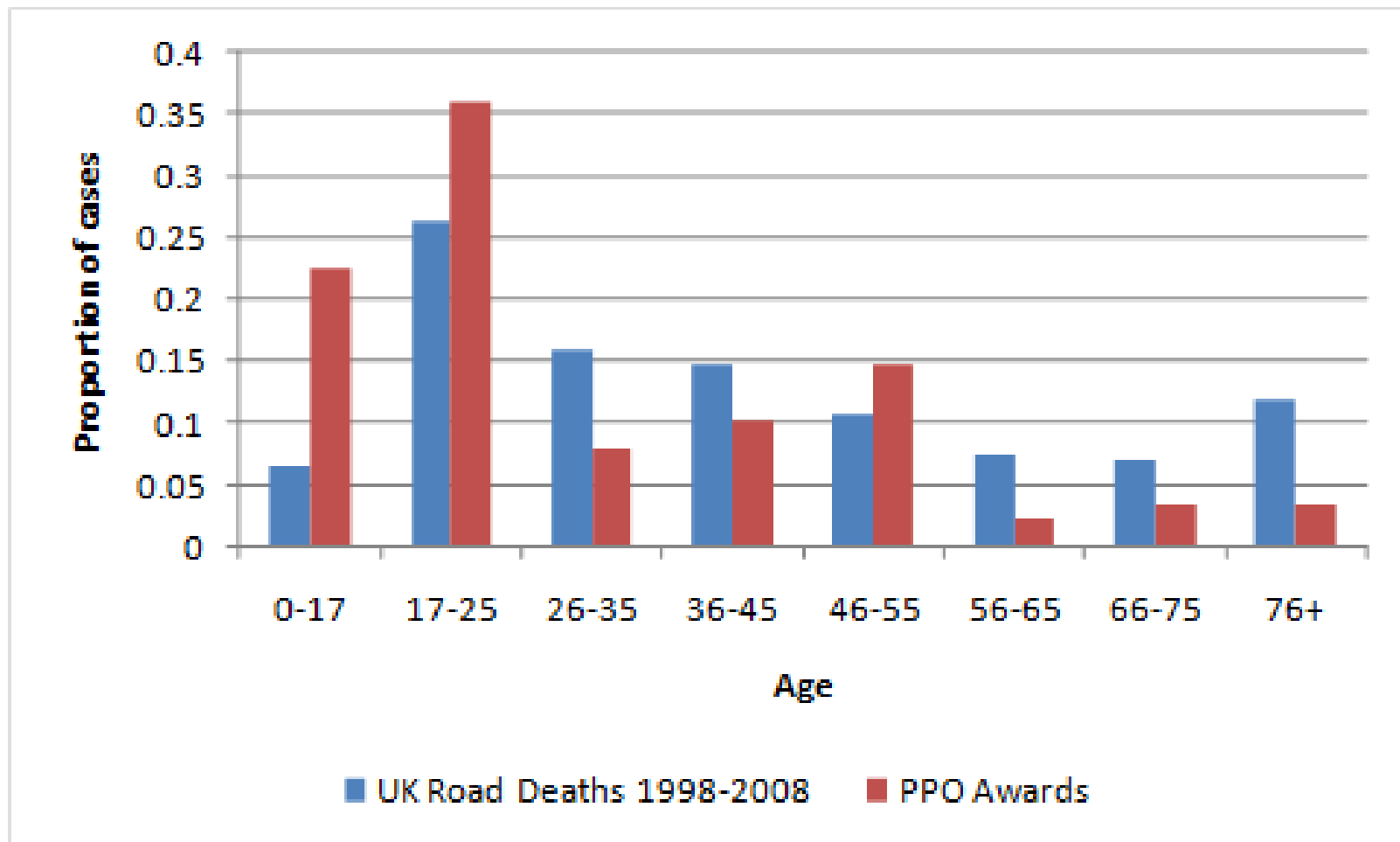


- Due to these two changes, the exact cause of the jump in PPOs is unknown. This unfortunately means it is hard to judge whether the number of PPOs will drop when the economy improves

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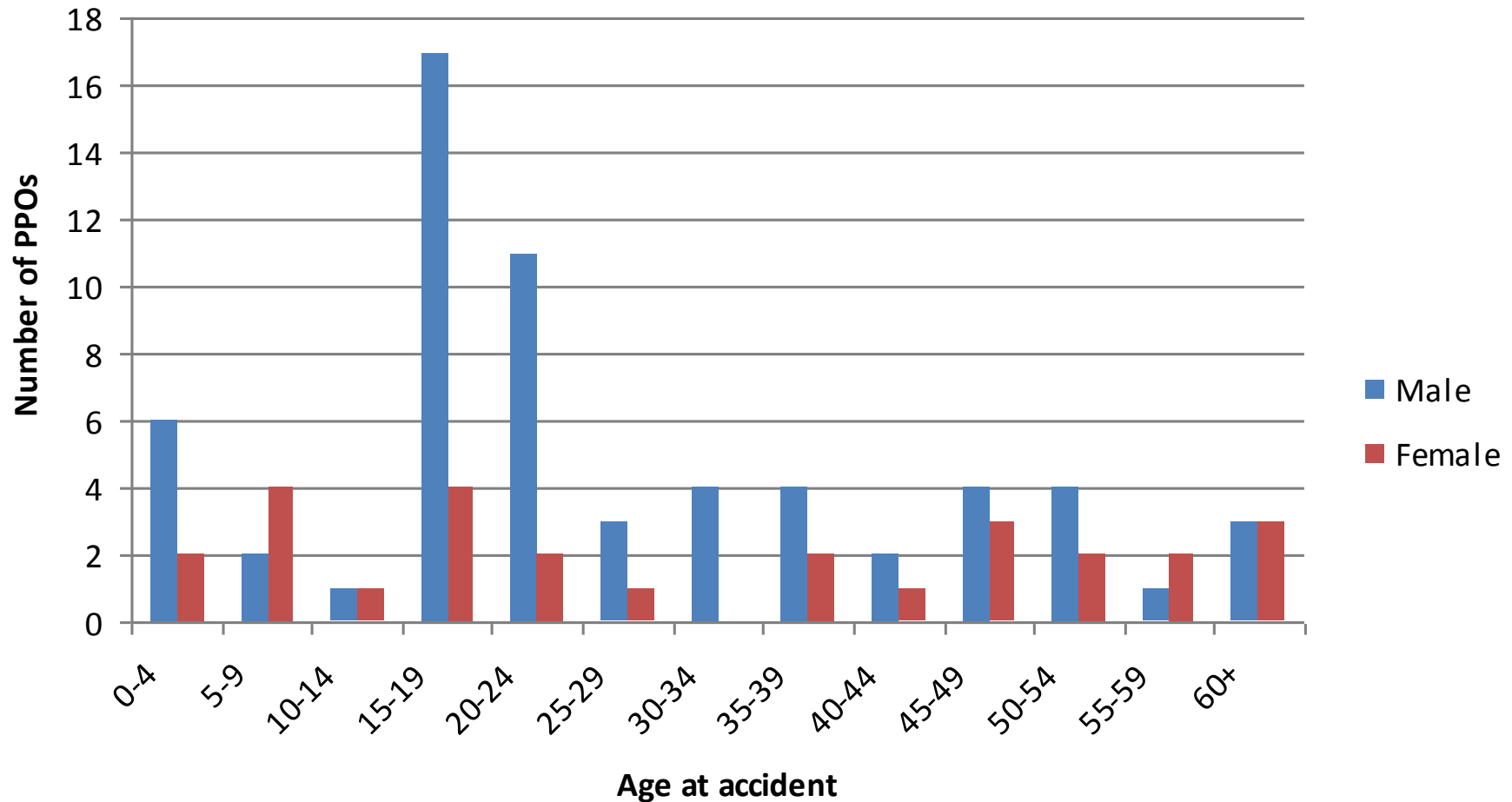
**What claims are
impacted?**

What claims are impacted?



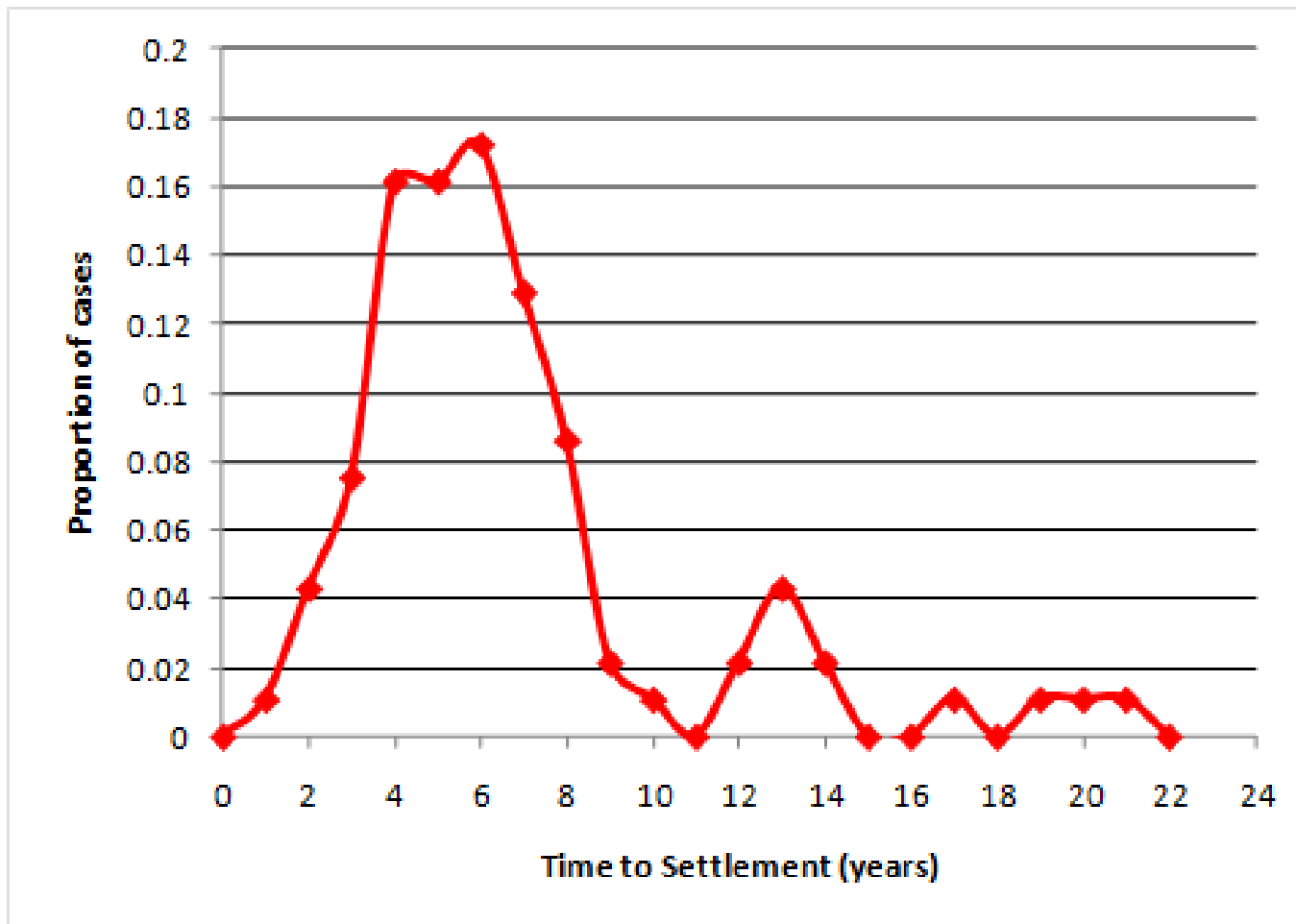
Trends are consistent with more generic road death information

What claims are impacted?



From 1998 to 2008 75% of road deaths have been Male

What claims are impacted?



What claims are impacted?

- Higher proportion of large claims awards involving minors require court approval
 - Judges more likely to award a PPO
 - However, on the whole PPOs are agreed between the parties most of the time
- Longer life expectancy for younger claimants
 - PPOs gives claimants greater certainty for future care payments
- Some anecdotal evidence that older claimants are also interested in PPOs as a form of security
 - A shorter life expectancy means a few years difference has a larger financial impact

What claims are impacted?

| Factor | Mean | Median | Standard Deviation | Sample Size |
|---|-----------|-----------|--------------------|-------------|
| Age at settlement | 36 | 27 | 18 | 90 |
| Life expectancy | 41 | 45 | 16 | 75 |
| Life expectancy reduction (compared to Ogden 6th edition) | 12 | 8 | 12 | 75 |
| Annual PPO payment | 83,046 | 61,108 | 63,775 | 94 |
| Lump Sum Amount | 1,808,397 | 1,650,000 | 1,166,955 | 93 |
| Ogden Cost | 3,694,276 | 3,326,811 | 2,265,104 | 75 |
| Non-PPO portion as percentage of Ogden cost | 50% | 48% | 15% | 75 |
| PPO portion as percentage of Ogden cost | 50% | 52% | 15% | 75 |

- The Ogden cost in the table is calculated as being the lump sum amount plus the net present value of the PPO annuity over the life expectancy of the claimant, discounted at the Ogden rate of 2.5%

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**How a General
Insurance company
might be affected**

How a General Insurance company might be affected

- PPOs are likely to change the shape of the reserves for general insurers and reinsurers, the risks companies are exposed to, and potentially the cost of providing insurance
- A model was created projecting the reserves of a Motor book for the primary insurer and reinsurer allowing for a shift from all claims settling on a lump sum Ogden multiplier basis to some settling as PPOs
- This allowed investigation for the insurer and reinsurer of the impact on
 - Reserve sizes
 - Mean terms
 - Loss ratios
 - Impacts on the insurer vs. reinsurer
 - Sensitivity to assumptions
- A generic motor portfolio with reinsurance of unlimited excess of £1m was selected
- Results shown are for a GI company that has reached a “steady state”, i.e. with early settling PPOs reaching their life expectancy

Projections of a GI Company

Key Assumptions

Assumptions

- Many of the assumptions selected were simplifying, with the intent to get a broad view of the impacts
- The main assumption for the base calculations were that the conditions match the assumptions underlying the Ogden calculation, so that on a gross basis PPOs are cost neutral for the primary insurer
- Major assumptions adopted included:
 - 30% PPO take up
 - The loss ratio will remain constant, hence claims and premium inflation is equal
 - Peril splits remain constant ignoring PPOs (i.e. the claims inflation is equal across perils, large & small claims)
 - No structural changes will occur, hence reinsurance premiums will remain constant
 - No complex PPO arrangements (e.g. stepped claims, variability orders)
 - Large claim payments and reinsurance payments have the same payment pattern, which also acts as a proxy settlement pattern
 - PPO and Ogden reinsurance calculations (and PPO payment patterns) are based on an average large claim settling after the mean term
- Other generic assumptions such as payment patterns, size of premium, peril loss ratios, reinsurance cost etc. were also made and are fully detailed in the main paper

Projections of a GI Company Loss Ratio Impact

| Peril | 100% Ogden | | | 30% PPO Propensity | | |
|------------------|--------------|--------------|--------------|--------------------|--------------|--------------|
| | Gross | Net | Reinsurers | Gross | Net | Reinsurers |
| Own Property | 18.6% | 20.0% | - | 18.6% | 20.0% | - |
| TPPD | 22.8% | 24.6% | - | 22.8% | 24.6% | - |
| Small BI | 27.1% | 29.1% | - | 27.1% | 29.1% | - |
| Large BI (Ogden) | 6.8% | 3.6% | 49.3% | 4.8% | 2.5% | 34.5% |
| Large BI (PPO) | - | - | - | 2.0% | 1.3% | 12.0% |
| Total | 75.3% | 77.3% | 49.3% | 75.3% | 77.5% | 46.5% |

- The loss ratios show that the impact on the insurer is minimal, with no change under the base assumptions to the gross loss ratio and a small hit to the net loss ratio
- The increase to the net loss ratio is the result of indexation creep – where due to claims being paid as a PPO the reinsurance retention is indexed to a higher level
- For the reinsurer, this is having a beneficial impact on the loss ratio, with their loss ratio falling by almost 3 points
- The loss ratios are discounted – both the premiums and claims are discounted back to a common point in time

Projections of a GI Company Reserves Impact

| Type of Reserve | Discounted Reserves | | | Discounted Mean Term | | |
|-------------------------------|---------------------|--------|------------|----------------------|-------|------------|
| | Gross | Net | Reinsurers | Gross | Net | Reinsurers |
| 0% PPO Propensity | 1,265m | 1,029m | 236m | 2.2 | 1.9 | 3.4 |
| 30% PPO Propensity | 1,535m | 1,103m | 431m | 4.5 | 2.7 | 9.2 |
| Total Difference (+/-) | 270m | 75m | 195m | 2.3 | 0.8 | 5.8 |
| Total Difference (%) | 21.3% | 7.2% | 82.5% | 108.4% | 43.1% | 168.1% |

- The reserves and mean terms of the insurer and reinsurer above are based on the total costs, across all perils and all accident years yet to run-off
- Generally, the impact is significant for the insurer on a gross basis, but less so on a net basis
- However, the impact for the reinsurer is extreme. The size of the reserves could be expected to increase by over 80%, while the mean term would increase from 3.4 years to 9.2 years – almost tripling

Projections of a GI Company Outcomes

Key Outcomes – Insurer

- No impact on loss ratio (Gross), little impact on loss ratio (Net)
- Increases the discounted reserves by 21% (Gross), 7% (Net)
- Represents 27% of discounted reserves (Gross), 13% (Net)
- Increases the mean term of total outstanding claims by 108% (Gross), 43% (Net)

Key Outcomes – Reinsurer

- Improves the loss ratio by 2.8 points
- Increases the discounted reserves by 82%
- Represents 62% of discounted reserves
- Increases the mean term of total outstanding claims by 168%

Projections of a GI Company

Sensitivity analysis

| Peril | Reserves | | | Mean Terms | | | Loss Ratios | | |
|-----------------------------|------------|-------|--------|------------|--------|--------|-------------|-------|-------|
| | Gross | Net | Rein | Gross | Net | Rein | Gross | Net | Rein |
| | % increase | | | % increase | | | +/- % | | |
| PPO Propensity = 15% | -8.8% | -3.4% | -22.6% | -23.5% | -14.5% | -22.2% | - | -0.1% | +1.4% |
| PPO Propensity = 45% | +8.8% | +3.4% | +22.6% | +19.7% | +13.6% | +14.0% | - | +0.1% | -1.4% |

- The model was used to flex a number of assumptions to determine the sensitivity of the assumptions on the outcomes
 - No analysis was done on the comparative likelihood of each sensitivity change occurring
- As per the main model, due to the simplifications these should be treated not as exact figures, but a general feel for impacts
- When flexing the overall propensity, the reserve size and mean terms increase or decrease as the propensity increases or decreases. It should be noted that even with the 15% PPO propensity, although reserves/mean terms are a large drop on the 30% PPO propensity position, they are still higher than the 0% propensity
 - Loss ratios are only materially impacted for reinsurers
- Generally, there was a common theme with most sensitivity changes impacting reinsurers are more than insurers

Projections of a GI Company

Sensitivity Analysis

| Peril | Reserves | | | Mean Terms | | | Loss Ratios | | |
|---------------------------------------|------------|-------|--------|------------|--------|--------|-------------|-------|--------|
| | Gross | Net | Rein | Gross | Net | Rein | Gross | Net | Rein |
| | % increase | | | % increase | | | +/- % | | |
| Real Discount Rate 5% | -9.3% | -5.8% | -18.1% | -19.5% | -13.3% | -18.6% | -3.0% | -2.5% | -9.5% |
| Real Discount Rate 0% | +13.6% | +7.6% | +29.0% | +31.6% | +22.3% | +26.2% | +3.8% | +2.9% | +15.4% |
| Wage Inflation (AEI) Base + 2% | +0.1% | -2.0% | +5.5% | -0.1% | -12.9% | +5.2% | -0.2% | -0.1% | +1.5% |
| Wage Inflation (AEI) Base - 2% | -0.2% | +1.7% | -4.9% | +0.1% | +11.6% | -5.5% | +0.2% | +0.0% | -1.8% |
| Carer's Inflation = AEI - 1% | -2.5% | -0.3% | -8.2% | -9.0% | -3.2% | -9.7% | -0.3% | -0.1% | -2.4% |
| Carer's Inflation = AEI + 1% | +3.1% | +0.3% | +10.1% | +10.9% | +3.3% | +11.0% | +0.3% | +0.1% | +3.2% |

- Sensitivity to a number of economic assumptions was tested
- Both insurers and reinsurers are very sensitive to changes in the real discount rate
 - This the most significant assumption as far as loss ratio costs are concerned. For insurers and reinsurers there is a substantial movement
- For changes in the wage inflation base assumption (but not the real discount rate) or in the PPO inflation above/below wage inflation, only the mean term changed materially for the insurer
- The reinsurer however was quite sensitive to both assumptions, with changes to the reserves, mean terms and loss ratios

Projections of a GI Company

Sensitivity Analysis

| Peril | Reserves | | | Mean Terms | | | Loss Ratios | | |
|--|------------|-------|--------|------------|--------|--------|-------------|-------|-------|
| | Gross | Net | Rein | Gross | Net | Rein | Gross | Net | Rein |
| | % increase | | | % increase | | | +/- % | | |
| Expected life expectancy 10yrs less | -4.9% | -2.3% | -11.8% | -18.9% | -13.4% | -19.0% | - | -0.0% | +0.4% |
| Expected life expectancy 10yrs more | +4.9% | +2.2% | +11.6% | +21.7% | +16.2% | +20.2% | - | +0.0% | -0.3% |
| Life Expectancy 10% overstated | -3.3% | -1.1% | -8.8% | -10.2% | -6.3% | -9.4% | -0.1% | -0.0% | -0.7% |
| Life Expectancy 10% understated | +3.4% | +1.1% | +9.3% | +10.9% | +6.8% | +9.5% | +0.1% | +0.0% | +0.6% |

- The sensitivity to the life expectancy assumption was investigated by assessing the cost of the life expectancy being 30/50 years instead of 40, and where it was either 36/44 when it was expected to be 40
- Looking at changes around the life expectancy, the implications for the general insurer are not particularly significant
 - Whether life expectancy is increasing or decreasing, loss ratios are not materially changed, irrespective of whether it is a change in the life expectancy or whether the life expectancy turns out to be wrong
 - There is a reasonably significant increase in gross and net reserves
 - The mean term increases/decreases as life expectancy increases/decreases
- For reinsurers, there is a small loss ratio impact, and a significant change in the mean terms and reserves
 - These changes are reasonably consistent for the reserves and loss ratios for both changes. Mean terms are more sensitive
- Across all the sensitivities, insurers were mostly only impacted by the PPO propensity and the real discount rate changes
- Reinsurers were impacted by many of the assumptions, across reserves, mean terms and to their loss ratio

Projections of a GI Company – Summary

- Even with cost neutral assumptions for the insurer's gross position, there is a significant change for the reinsurer
- Both the insurer and reinsurer's mean term and size of reserves increase materially. This, all else being equal, will equal an increase in risk
- Although on a net basis the insurer is not too sensitive to most assumptions, the reinsurer is extremely sensitive to many of them. The pricing error risk for reinsurer's is much larger than for insurers
- The key assumption that significantly impacts insurers as well as reinsurers is the real discount rate. This has implications for the loss ratios for both companies
- The "standard" motor insurer alters from a company that takes premiums (and can distribute profits two years later) to a company that has to maintain reserves for 30-40 years or more with huge exposure to investment markets and general economic forces - more hedge fund than general insurer
- **In summary**
 - **PPOs will add risk to insurers and in a low investment return climate will add to the loss ratio. The impact may be exacerbated for smaller insurers**
 - **For reinsurers the impacts are more difficult to quantify, with some scenarios improving the loss ratio due to indexation creep. However, all have significant implications for mean terms and reserve sizes**
 - **Either way – additional risk means that it is impossible for PPOs to be cost neutral, and adverse conditions would mean there is significant costs**

Capital Implications

Main Risk Groups

- Escalation risk (including variation orders and ASHE escalation)
- Index risk (risk that ASHE index will not continue)
- Propensity risk
- Regulatory/judicial risks
- Economic (investment returns, inflation, liquidity premium) risks
- Individual mortality risk
- General mortality improvement risk
- Emergence of secondary markets
- Long term credit risks
- MIB risk

Many of these risk groups are highly correlated and need to be allowed for in capital calculations

Capital Implications

Capital Calculation Issues

- Mean terms and size of reserves are significantly larger than previously and are increasing as the volume of PPOs in payment matures
- Capital will need to be held for longer, increasing reliance on the investment market and general economic forces
- No matching assets – basis risk remains even with real assets and as yet, no reliable secondary market exists for PPO liabilities
- Solvency II's Market Value Margin requires technical provisions to be held at a “fair value”. Because of the absence of a liquid secondary market for PPOs, this requires the use of a cost of capital approach
 - the MVM depends on future capital
 - the calculation will need to allow for the future capital costs in respect of PPOs
 - the MVM will need to be extended to the longest life expectancy possible and allow for the full spread of risks at each future point in time.

Capital Implications

Other issues likely to be experienced by a motor insurer

- Life type liabilities instead of non-life
- No matching assets – basis risk remains even with real assets
 - It is very difficult to remove PPO risk from the balance sheet
- Difficulties in calculations due to no reliable history, in particular for smaller insurers
- As yet, no reliable secondary market exists for PPO liabilities
- PPOs may invalidate some business models currently used by smaller insurers and impact the M&A market. There are no economies of scale benefits for smaller insurers

Reinsurance Implications

Reinsurance recovery considerations

- Complex due to clauses in typical motor excess of loss contracts
- Recoveries delayed materially
- Protection not the same as with lump sums
- Long term nature of claims and recoveries increase credit risk
- Recoveries could vary across different reinsurance treaties
- Under current wording, generally excess is indexed using a weighted average of all payments
- Net reserves modelled on a cash-flow basis
 - This means they will then be equal to the present value of future claims net of recoveries using the discount rate used for the gross reserves
 - Additional estimate of the bad debt reserve required

Reinsurance

Example claim

Claimant details

- Male, 18 at incident, 25 at settlement
- Normal life expectancy (say 55 years, deterministic)

Settlement

- £2m lump sum and £50,000 p.a. for life linked to ASHE 6115

Reinsurance

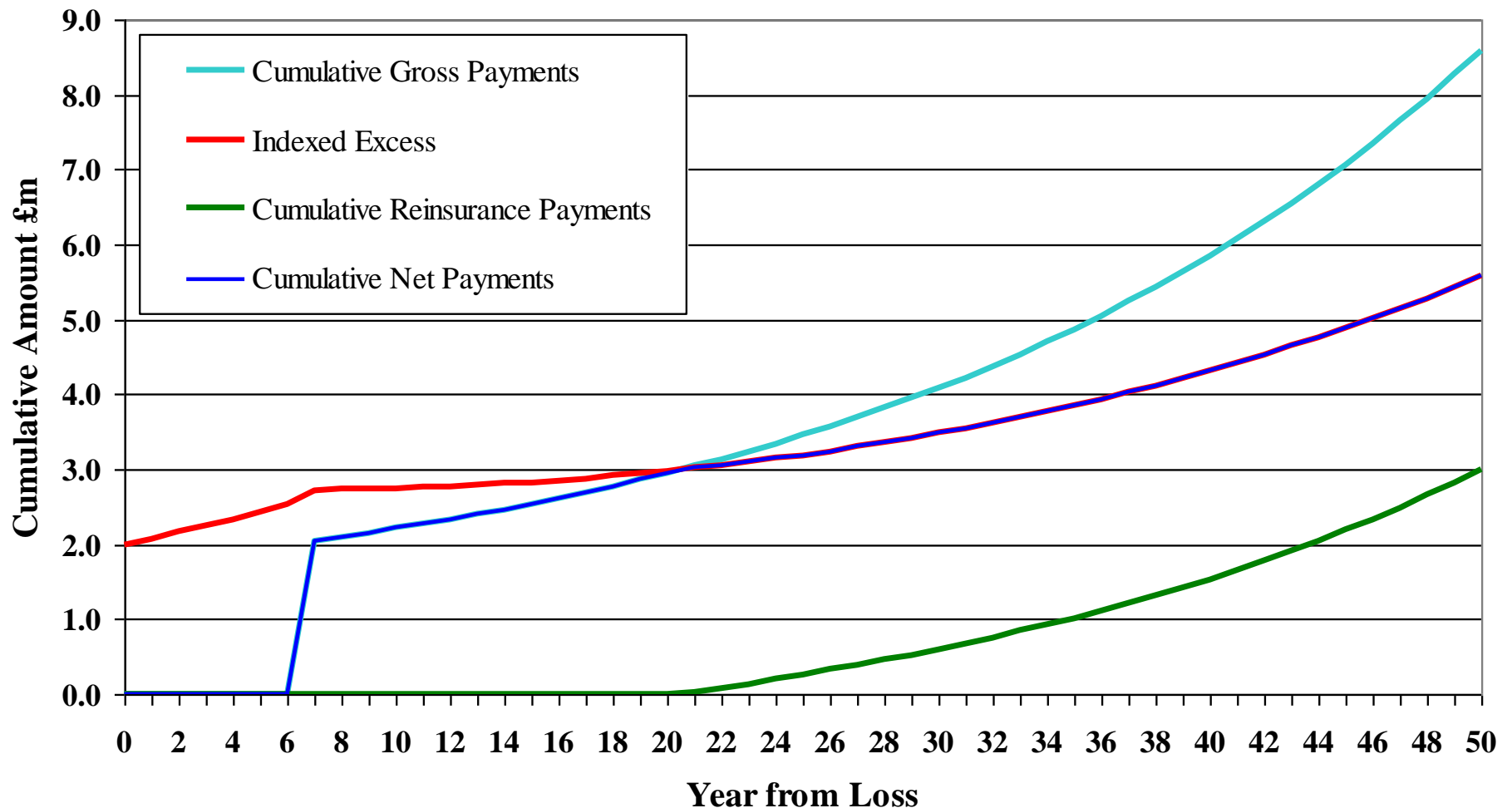
- Unlimited excess £2m, indexed using LMIC clause

Market Assumptions

- AEI of 4%, ASHE of 4.5%
- Real discount rate of 2.5% over AEI.

Reinsurance

Cumulative cash flows for example claim



Reinsurance Example claim

| | Ogden Equivalent | PPO Equivalent | Change | |
|--------------------|---------------------|-------------------|-----------------|--------|
| | | | +/- | % |
| Gross | 3,522,841 | 3,580,674 | 57,832 | 1.6% |
| Reinsurance | 794,635 | 511,900 | -282,735 | -35.6% |
| Net | 2,728,207 | 3,068,774 | 340,568 | 12.5% |

Impact

- The impact is a slight deterioration at a gross level, due to ASHE inflation being higher than AEI
- However, the key impact is the reinsurance
 - The reinsurer's position improves significantly due to indexation
 - The insurer's net position is significantly worse
- These results are more significant than the earlier analysis as there is a higher reinsurance excess (£2m vs. £1m) and because the insurer's results are not diluted by non-PPO and small claims.

Pricing Implications

- PPO variations will be difficult to allow for in pricing models
- Capital implications will need to be factored into prices
- Reinsurance pricing will become more difficult
 - Indexation clauses and delays to payments benefit reinsurers
 - Exposure to more and longer risks will particularly impact reinsurer capital requirements
 - Changes in risk have a bigger gearing effect on reinsurers
- Payment delays introduce more credit risk to the primary insurer
- Absence of prior experience
 - Reinsurers will have more exposure which may help inform their pricing

Government/Regulator/MIB Implications

Government

- Allows cashflow benefits under pay as you go system for statutory and government bodies, although the NHS is likely to build up huge annual payments for long ago settled cases
- Reduces the pressure on the Lord Chancellor to change the discount rate since there is the argument that claimants can opt for a PPO
- Reduces the likelihood of claimants falling back on the state for their care needs
- Could play important role in any industry pooling initiative
- Tax implications

Regulator

- Risk of failure of an insurer
- The greater uncertainty around the calculation means Regulators may want to be very careful that insurers are not understating the potential liabilities
- The FSA authorises (re)insurers to write Non-Life liabilities, but they are accepting life risks

MIB

- Distortions in the market where the MIB settles via PPOs and charges the levy on a Pay as You Go basis

GIRO 2010 PPOs – be afraid, be very afraid



Other information

What Else is in the Paper

- Case studies of recent court cases
- Industry experience
 - further summary statistics
 - current industry reserving practice
- Information to assist in pricing and reserving
 - Assumptions
 - Detailed comparisons of ASHE to AEI and RPI
 - Reserving methodologies
 - Impaired Life Mortality
- Reinsurance
- Operational challenges
- Risk mitigation
- Other reading