Biennial Convention 2007

Adventures in Risk

23-26 September 2007 • Christchurch, New Zealand

Institute of Actuaries of Australia

# Actuarial Methods in Health Insurance Provisioning, Pricing and Forecasting

Peter Lurie - PricewaterhouseCoopers

# Overview

- Describe methods
- Survey Appointed Actuaries
- Assess claim liabilities
- Set contribution rates
- Forecast financial position
- Conclusions

# Describe methods

- Valuation categories
- Chain ladder
- PPCI/PPCR/other PPC--
- Claim ratio
- PCE
- Claim freq x member projn x ave  claim size
- Drawing rate

# Survey Appointed Actuaries

- Short survey dispatched
- Seven responses received with thanks
- 6 of 8 large funds covered (conts > $200m)
- 9 of 30 medium/small funds covered
- Are survey outcomes indicative ?
- Most likely yes, but you tell me !

# Assess outstanding claim (OSC) liabilities

- Most funds use adjusted chain ladder
- PCE/PPCI/PPCR the way forward ?
- Most use three valuation groups
- Two large funds use only two

# Assess future claim liabilities

- CIA and CO used by all funds surveyed
- Claim ratio based
- Prospective vs retrospective – an even balance
- URL if future claim liability > unearned conts
- DAC not used by some funds
- DAC needs writing back if URL > $0

# Price and forecast

- Done by State for large funds
- Done nationally for medium/small funds
- Combine claim assessment methods with :
  - Participation rates
  - Membership growth
  - RETF, management expenses, investment
- Detailed pricing at sub-cat or table level

# Economic assumptions

- OSC liabilities most often not discounted
- Risk-free rate used when discounted
- Future claims (FC) longer WMT – discount ?
- Realistic rates used for pricing and forecasts
- Inflation & superimposed inflation follow interest rate approach
- Forecasts use superimposed inflation but not OSC or FC valuations usually don’t

# Expense assumptions

- Expense loading lower for large funds
- OSC valuations – claim mgt expenses only
- FC valuations – claim and policy mgt exps
- Some funds use the lower OSC exps for FC
- Some funds use non-acquisition exps for FC
- Higher exps loadings on ancillary than hosp
- All expenses taken up in pricing & forecasts

# Risk Margins (RM)

- A developing area
- Diversity of practice exists
- Low and high band for large fund RM
- High RM band for large funds similar to medium/small funds
- Are RM on FC > or < on OSC ?
- Probability of adequacy 75% to 95% for large and 75% to 80% for medium/small funds

# Conclusions

- Actuarial methods in use are fairly consistent
- Most assumptions used are fairly consistent
- Risk margins an area of diversity
- For the future –
  - OSC methods need to align with pricing forecasting
  - refinement required on expense loadings
  - Research and development work on RM


# Actuarial Methods in Health Insurance Provisioning, Pricing and Forecasting

Peter Lurie - PricewaterhouseCoopers