Michigan Catastrophic Claims Assn.

A Reinsurer Created by Michigan Statute

Presented by
Roger M. Hayne, Ph.D., FCAS, MAAA
Principal & Consulting Actuary

October 4, 2010

Milliman

Actuaries Love Numbers

- More than 25,000 occurrences reported to MCCA since inception July 1, 1978
- Nearly 13,000 occurrences still open
- More than $8 billion losses reimbursed on more than 11,300 occurrences
- Discounted reserves $13.7 billion (7.1% interest)
- Undiscounted reserves $66.6 billion
- Approximately 7 million vehicles insured in Michigan
- Current liability totals nearly $2,000 per vehicle discounted and more than $9,500 undiscounted
- These numbers are BIG

Milliman

More Numbers

- Assessment is $143.09 per vehicle to provide for losses in excess of $480,000 per occurrence on claims arising from policies issued July 1, 2010 through June 30, 2011
- 2010/2011 expected frequency about 17 claims per 100,000 vehicles, severity more than $680,000
- Duration of MCCA liabilities more than 15 years at 7.1% interest
- 100 basis point change in interest assumption
  - Increases reserves by $1.9 billion (14%), more than $270 per vehicle or
  - Decreases reserves by $1.4 billion (10%), nearly $200 per vehicle
- Claims arising July 1, 1978 through June 30, 1979 incidents still being reported to MCCA

Milliman

Some Implications

- MCCA liabilities have a long tail
- MCCA liabilities have a long tail
- MCCA liabilities have a long tail – enough said?
- As a result the existing liabilities are very large relative to current exposure
- MCCA can assess for excesses or deficiencies in past assessments
- The MCCA board has elected to target a $0 surplus
- As a result reserve fluctuations that are small percent of reserves can have a large impact on surplus/deficit per vehicle

Milliman

Some Implications

- Very large percentage of total liabilities still outstanding
- Some changes affect all open claims and by virtue of this long tail affect all claim nearly equally
- From a development point of view such changes have very strong diagonal effects
- Example of such a “systemic” change is activity by plaintiff bar relative to attendant care reimbursement to family members
- Poses a challenge for traditional development methods
- Long tail means discounted rather than undiscounted amounts are more meaningful particularly since MCCA reports liabilities on a discounted basis on financial statements

Milliman

Reserve & Rate Calculations

- Both based on same data set of claim information
- Case reserves set as the present value of expected future payments for individual claimants
  - Annual cost estimates payments on a claimant in 15 different categories (e.g. attendant care by family, transportation, physician, etc.)
  - Uniform assumptions about future cost growth by category for all claimants
  - Calculate expected future payment above MCCA attachment using mortality assumptions that vary by age, gender, time since accident, and certain injury characteristics
  - Discount to valuation date using an expected return for MCCA portfolio with no risk adjustment

Milliman

Reserve Calculation

- Separate calculations for development, IBNR, and reserves for known claims without annual cost estimates
- Development of historical paid losses plus discounted reserves at valuation date will develop upward over time even if reserves run off exactly as planned (unwinding of discount)
- Small variation in later payments make development of undiscounted reserves highly volatile
- Solution state all (fiscal) accident year totals discounted to the beginning of the accident year (using historical returns)
- Development reserves only for movement on existing claims using development modified to account for changes in global (economic and mortality)

Milliman

Reserve Calculation

- IBNR combines a forecast of future claims to be reported and historical averages by report lag and historical trend, adjusted for changes in MCCA attachment
- Claims reported but without annual cost estimates estimated using historical average costs by length of time till reserved and rate of reserving by injury category
- Expense reserves added for expenses
  - A&O case reserves for A&O based on effort to adjust claims and historical payments using annuity model
  - A&O IBNR based on average A&O and IBNR count estimates
  - DCC estimated as a percent of loss reserves
- Smoothed using Bornhuetter-Ferguson

Milliman

Rate Calculation

- Begin with same claim data as reserves
- Adjust historical attachment amounts to attachment for policy year for which rates are to be estimated
- Use the methodology for deriving ultimate estimates by (fiscal) accident year
- Estimate frequency using trend in forecast (incurred) claim counts
- Limit losses to $10 million and estimate limited severity based on historical severities (discounted to start of accident year) and trended
- Trends based on weighted regression using all but most recent year

Milliman

Final Assessment

- Rate estimate used for the pure premium for the prospective policy year
- Reserve estimate with an estimate of the corresponding assets provide estimate of surplus/deficit for prospective year
- Assessment sum of three components
  - Pure loss and expense premium for the prospective year
  - An adjustment in consideration for fund surplus or deficit
  - A provision for MCCA operating expenses
- Uniform rate per vehicle with historic and antique vehicles

Milliman

Summary

- Analysis for MCCA built on standard actuarial techniques
- Draws on techniques developed across actuarial spectrum including medical cost growth measures (health), annuity calculations (life) and development and IBNR methods (P&C)
- Probably longer tail than any other insurance liability
- Payments run to the death of an individual – the potential lifetime of an injured infant – potentially 100+ years
- As with P&C liabilities future payments substantially uncertain particularly with how long for which the estimates must be made
- Bottom line an interest challenge

Milliman