Reinsurance Reserving: Top-Down versus Bottom-Up

Casualty Loss Reserve Seminar
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Introductions

Moderator

Mark Littmann, PwC

Panelists

Gary Blumsohn, Arch Reinsurance Company

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Ground-Rules for our Discussion
Including disclaimers

- This presentation is prepared and intended for general educational and discussion purposes only.
- It should not be used as a substitute for consultation with professional advisors.
- The composition of data for reserving analysis is one of the many professional judgments required in the evaluation of unpaid claims estimates for property & casualty insurance exposures.
- The views and opinions expressed by the moderator and panelists may or may not be reflective of their own personal views and opinions; the views and opinions are not expressions of position by their employers.
- Enjoy the exchange of information and ideas.
- Contribute.

Outline for our Discussion

- Setting the Stage
- Perspectives on Bottom-Up Approach
- Perspectives on Top-Down Approach
- Dialogue

Setting the Stage

Setting the Stage

CAS Statement of Principles regarding Property & Casualty Loss and Loss Adjustment Expense Reserves

CONSIDERATIONS

- A knowledge of changes in underwriting, claims handling, data processing and accounting, as well as changes in the legal and social environment, affecting the experience is essential to the accurate interpretation and evaluation of observed data and the choice of reserving methods.
- A knowledge of the general characteristics of the insurance portfolio for which reserves are to be established also is important. Such knowledge would include familiarity with policy provisions that may have a bearing on reserving, as well as deductibles, salvage and subrogation, policy limits, and reinsurance.

Setting the Stage

CAS Statement of Principles regarding Property & Casualty Loss and Loss Adjustment Expense Reserves

CONSIDERATIONS – include, but are not limited to:

- Homogeneity
- Credibility
- Data availability
- Emergence patterns
- Coverage trigger (e.g., claims-made)
- Aggregate limits
- Changes in contracts

Setting the Stage
ASOP 23 – Data Quality

- §3.1 The actuary should use available data that, in the actuary's professional judgment, allow the actuary to perform the desired analysis.
- §3.2 The actuary should consider the scope of the assignment and the intended use of the analysis being performed in order to determine the nature of the data needed and the number of alternative data sets or data sources, if any, to be considered. The actuary should do the following:

  a. consider the data elements that are desired and possible alternative data elements;

  b. (next page)

Setting the Stage
ASOP 23 – Data Quality

- §3.2 (continued) The actuary should:

b. select the data with due consideration of the following:

1) appropriateness for the intended purpose of the analysis, including whether the data are sufficiently current;
2) reasonableness and comprehensiveness of the necessary data elements, with particular attention to internal and external consistency;
3) any known, material limitations of the data;
4) the cost and feasibility of obtaining alternative data, including the ability to obtain the information in a reasonable time frame;
5) the benefit to be gained from an alternative data set or data source as balanced against its availability and the time and cost to collect and compile it; and
6) sampling methods, if used to collect the data.

Setting the Stage

Reinsurance vs. Primary Reserving

Attribute	Primary Personal	Primary Commercial	Reinsurance
Contract size	Small	Small to Medium	Typically large
# Contracts	Many	Many to Fewer	Still fewer
Actuarial involvement in contract pricing	Never	Sometimes	Often
Reserving for a single contract	Never	Sometimes	Yes

Setting the Stage
Reinsurance Attributes

General Attributes

- Line of business
- Type
  - Treaty Excess of Loss
  - Treaty Pro-Rata
  - Facultative
- Region (e.g., country)
- Distribution channel (broker, direct)
- Cedant type (global, national, regional)

Contract Attributes

- Coverage trigger
- Attachment
- Occurrence and/or aggregate limits
- Occurrence and/or aggregate deductibles
- Loss corridors
- Inception date
- Substantial size

Setting the Stage

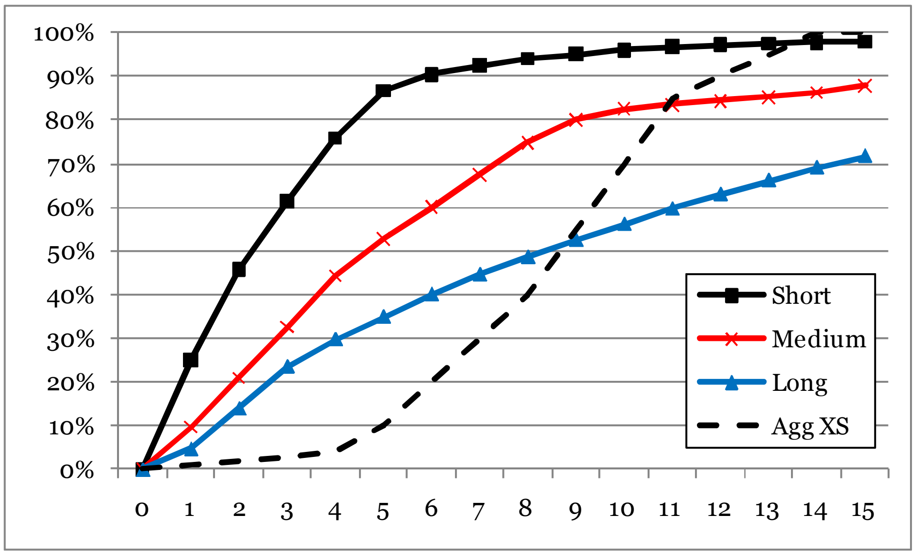
Profile of portfolio can change dramatically and quickly

	Premium Volume					
UY	Short	Medium	Long	Agg XS	Sum	Avg Lag
1995	0	104	101	0	205	9.3
1996	0	109	111	50	270	9.2
1997	0	115	122	100	337	9.2
1998	0	121	134	170	425	9.2
1999	0	127	147	213	486	9.2
2000	0	133	162	223	518	9.2
2001	0	140	178	234	552	9.3
2002	0	147	196	117	460	9.4
2003	0	154	216	0	370	9.7
2004	0	162	237	0	399	9.7
2005	50	170	261	0	481	9.1
2006	125	178	287	0	590	8.5
2007	200	187	316	0	703	8.1
2008	175	197	347	0	719	8.4
2009	100	206	382	0	688	9.0
2010	0	217	420	0	637	10.0
Avg Lag	3.8	7.2	11.4	9.0		

Setting the Stage

Profile of portfolio can change dramatically and quickly

Reported loss emergence patterns.



UY	Avg Lag	Avg % at Age 4
1995	9.3	37%
1996	9.2	30%
1997	9.2	25%
1998	9.2	22%
1999	9.2	21%
2000	9.2	21%
2001	9.3	21%
2002	9.4	26%
2003	9.7	36%
2004	9.7	36%
2005	9.1	40%
2006	8.5	44%
2007	8.1	47%
2008	8.4	45%
2009	9.0	41%
2010	10.0	35%

Potential for under-reserving

Potential for over-reserving

Perspectives on Bottom-Up Approach

Gary Blumsohn
Arch Reinsurance Company

Perspectives on Top-Down Approach

Arlie Proctor
Munich Re

Dialogue

Prompts for Discussion

1) Are there inherent tendencies in the two approaches that could cause them to produce divergent estimates of the liabilities?
2) What business attributes do you think are most important for choosing a top-down or bottom-up approach?
3) Are there certain contract features that would cause some contracts to be analyzed <u>always</u> on an individual basis?
4) How can information from contract-based pricing influence the evaluation of reserves on an aggregated basis?
5) If you primarily use a top-down approach for reserving for financial reporting, but need to evaluate IBNR at a contract level for internal management reporting, what approach(es) would you recommend?

Prompts for Discussion

6) For a bottom-up approach, utilizing original ELR's and development patterns, how would you evaluate – "4" years later – whether they are still appropriate or not?
7) If a contract was written for "2" years, and "now" you know that it had substantially worse than average experience for the portfolio, would you remove it?
8) Is there any difference in the range of methods available for top-down versus bottom-up analyses?
9) Assumptions in reserving analysis should be unbiased. Is there greater opportunity for bias (e.g., optimism or conservatism) to be introduced in one approach relative to the other?

Closing Remarks

- Thanks to the panelists for their time and willingness to share their perspectives.
- Thank you for your participation.
- Please complete an evaluation for the session.
- Enjoy the rest of the seminar.