Commercial Lines - A Potpourri of Reserving Issues

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Backward Recursive Method

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Characteristics

- IBNR (supplemental) projection based upon historical case reserve development
- Resultant IBNR (supplemental) independent of losses paid or incurred to date
- Forward looking
- Requires intimate knowledge of claims department case reserving practices and consistency

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Applicable Lines of Business

- Claims-made policies:
  - Medical professional
  - Non-medical professional
  - Directors & officers
- Workers' compensation (AYs X-3 and prior)
- Occurrence policies on a report year basis (when coupled with a "Pure IBNR" projection method

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Backward Recursive Example

Paid Loss Development						
Year	12	24	36	48	60	ULT
X-4	20	50	65	75	85	100
X-3	20	50	65	75		100
X-2	20	50	65			100
X-1	20	50				100
X	40					200
Incurred Loss Development						
Year	12	24	36	48	60	ULT
X-4	50	75	85	90	95	100
X-3	50	75	85	90		100
X-2	50	75	85			100
X-1	50	75				100
X	50					100

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Backward Recursive Example

Case Reserves						
Year	12	24	36	48	60	ULT
X-4	30	25	20	15	10	0
X-3	30	25	20	15		
X-2	30	25	20			
X-1	30	25				
X	10					
Rk Ratio						
Year	24/12	36/24	48/36	60/48	Ult/60	
X-4	0.83	0.80	0.75	0.67	0	
X-3	0.83	0.80	0.75			
X-2	0.83	0.80				
X-1	0.83					
Chosen	0.83	0.80	0.75	0.67	0.00	

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Backward Recursive Example

Incremental Paid Losses						
Year	24/12	36/24	48/36	60/48	Ult/60	
X-4	30	15	10	10	15	
X-3	30	15	10			
X-2	30	15				
X-1	30					
Pk Ratio						
Year	24/12	36/24	48/36	60/48	Ult/60	
X-4	1.00	0.60	0.50	0.67	1.50	
X-3	1.00	0.60	0.50			
X-2	1.00	0.60				
X-1	1.00					
Chosen	1.00	0.60	0.50	0.67	1.50	

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Backward Recursive Example

Projection of Ultimate Losses					
AY	X	X-1	X-2	X-3	X-4
Cumulative Development Factor Dk = (Rk * D(k-1))+Pk	2.67	2.00	1.75	1.67	1.50
Case	10	25	20	15	10
Case + IBNR	26.67	50	35	25	15
Paid	40	50	65	75	85
Ultimate	66.67	100	100	100	100

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What are the benefits of using the Backward Recursive Method?

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Why do we like the Backward Recursive Method?

- Intuitive appeal and ease of communication
- Lack of “Pure IBNR” claims reduces uncertainty
- Loss development is solely a function of case reserve adequacy
- Produces cosmetically appealing IBNR/case reserve ratios by AY on Schedule P (avoids nonsensical implied ultimates)
- Method requires continuous communications between actuarial & claims. You must get inside the claims adjustors head

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What don't we like about the Backward Recursive Method?

- Diminishing case reserve base
- Selection of "tail factor" can be highly subjective
- Selected Pk and Rk ratios are highly leveraged…much judgment may be involved to prevent "hyper-development" or unexplainable "reversals"
- Change in case reserving philosophies and settlement practices will dramatically negate benefits of the method

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“Try it, you’ll like it”

Reluctance of actuaries to consider use of the Backward Recursive method, even on claims-made business. At least try it - no Alka-Seltzer needed

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Asbestos Reserving Issues

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Characteristics of Asbestos Liabilities

- Many claimants (x-ray machines in the "Winnebago")
- Long latency period of diseases, including second-hand exposures
- Multiple defendants (you don't want to be the last one standing)
- LAE can be greater than Indemnity

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Characteristics of Asbestos Liabilities

- Long periods of exposure
  - Multiple insurers
  - Varying policy limits, terms, conditions, reinsurers, etc., etc.
  - “Laminated placemat schematic” of multiple defendants and associated insurance coverage

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Asbestos Reserving Techniques

- Goal is to solve the "gigantic allocation problem" between:
  1. The manufacturer/installer/distributor: i.e. the insured defendant
  2. The insurers of the defendant
  3. The reinsurers of the insurers
  4. The retrocessionaires of the reinsurers
  5. Etc., etc.

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Benchmark Reserving Methods

- Survival Ratio Method
- Market Share Method
- Loss Development Method

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Survival Ratio Method

The number of years the current reserves will "survive" if average future annual payments will equal average current annual payments

- Benchmark again industry
- Used in financial disclosures and by AM Best

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Survival Ratio Method - Example

- Last five years of asbestos payments: 5,3,7,2,3 million:
  - Average $4 million; low $2 million, high $7 million
- If a reputable rating agency estimates a reasonable survival ratio should be 10 years, the estimated total needed reserve for this company should be $40 million (low: $20 million, high: $70 million)

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Market Share Method

Uses the insurance company's "market share" of asbestos associated lines-of business and classes to allocate total industry projections to individual companies

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Market Share Method - Example

- Reputable rating agency's estimate of total future asbestos payments - $50 billion
- Company's range of market share based upon prior paid losses - .010% - .015%
- Company's estimated total needed reserve - $5 million - $7.5 million

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Industry Loss Development Method

Develops the company's cumulative paid asbestos losses to date to ultimate using industry studies of estimated remaining asbestos liabilities in relation to total industry paid losses to date

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Industry Loss Development Method - Example

- Indicated remaining industry liabilities: $50 billion
- Industry paid asbestos losses to date: $25 billion
- Company paid asbestos losses to date: $25 million
- Company's estimated remaining asbestos liability = $25 million x 50/25 = $50 million

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The “Ground-Up” Approach

- Step 1 – The insured - Individual insured characteristics
  - Type of claim – products versus premises/operations, etc.
  - Length of reporting period
  - Legal situation
  - Issues of possible bankruptcy

The “Ground-Up” Approach

- Step 1 – The insured – Modeling each insured’s liabilities
  - Goal – Develop a set of assumptions and a model for the projection of the ultimate claims and the allocation of the liabilities to coverage block

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The “Ground-Up” Approach

- Step 1 – The insured – Modeling each insured’s liabilities
  - To apply the model to each insured’s situation
    - Historical reporting patterns
    - Historical frequency & severity
    - Claim knowledge
    - Legal knowledge

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The “Ground-Up” Approach

- Step 1 – The insured – Modeling each insured’s liabilities
  - Develop the “universe” of claims
    - Type of claim – products vs. premises/operations, etc.
    - Length of the individual claimant reporting period
    - Legal costs
    - Inflation (indemnity & legal)
    - Consider issues of bankruptcy

The “Ground-Up” Approach

- Step 1 – The insured – Modeling each insured’s liabilities
  - Q: How do we model the assumptions (which are developed with the partnering of actuarial, claim & legal experts)?
  - A: Model on a stochastic basis
    - Assumptions should be developed with a range of possible outcomes
    - The output of the model provides information as to the sensitivity of key assumptions

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The “Ground-Up” Approach

- Step 2 – The insurer – Modeling each insured’s liabilities
  - Once we have obtained the model output in Step 1, apply the coverage charts to obtain the range of ultimate loss estimates.
    - Policy limits (inc. products vs. premises/operations, etc.)
    - Primary vs. excess
    - Other coverage issues – “drop down/insolvency,” etc.

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The “Ground-Up” Approach

- Pure IBNR Projection (emerging defendants)
  - Model how many additional accounts may report claims in the future and apply frequency/severity assumptions per account. Basis:
    - Historical experience of the insurer
    - Industry studies of where we are on the “reporting curve”

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Pollution Reserving Issues

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Benchmark Reserving Methods

- Survival Ratio Method
- Market Share Method
- Loss Development Method

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The “Ground-Up” Approach

- Pun intended – or maybe we should call it the “ground-down” approach??☺
- Liability issues
  - Remediation Costs
    - National Priority List “NPL”
    - Non-NPL
  - Third-Party Indemnity Costs (BI or loss of property values)
  - Natural Resource Damage
  - Litigation Costs

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The “Ground-Up” Approach

- Projection methodology must reflect the underlying business
  - Years and volume of business written
  - Type of business written
  - Policy wording, especially pollution exclusion used, if any
  - Attachment point and width of layers written and retained
  - Limits structure
  - Expense treatment

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The “Ground-Up” Approach

- Steps
  - Communication with claims department and legal experts
  - Obtain claims data, including site information (NPL or non-NPL) and PRP share, if applicable
  - Estimate individual site remediation costs and apply PRP share, if applicable
  - Apply coverage charts (unlimited aggregate exposure usually not an issue)

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The “Ground-Up” Approach

- IBNR
  - Undiscovered policies
  - Unreported PRPs
  - Discovered but unreported sites
  - Undiscovered sites (NPL & non-NPL)

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