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Challenges and Opportunities for our Profession in Actuarially Developing Countries

General Insurance

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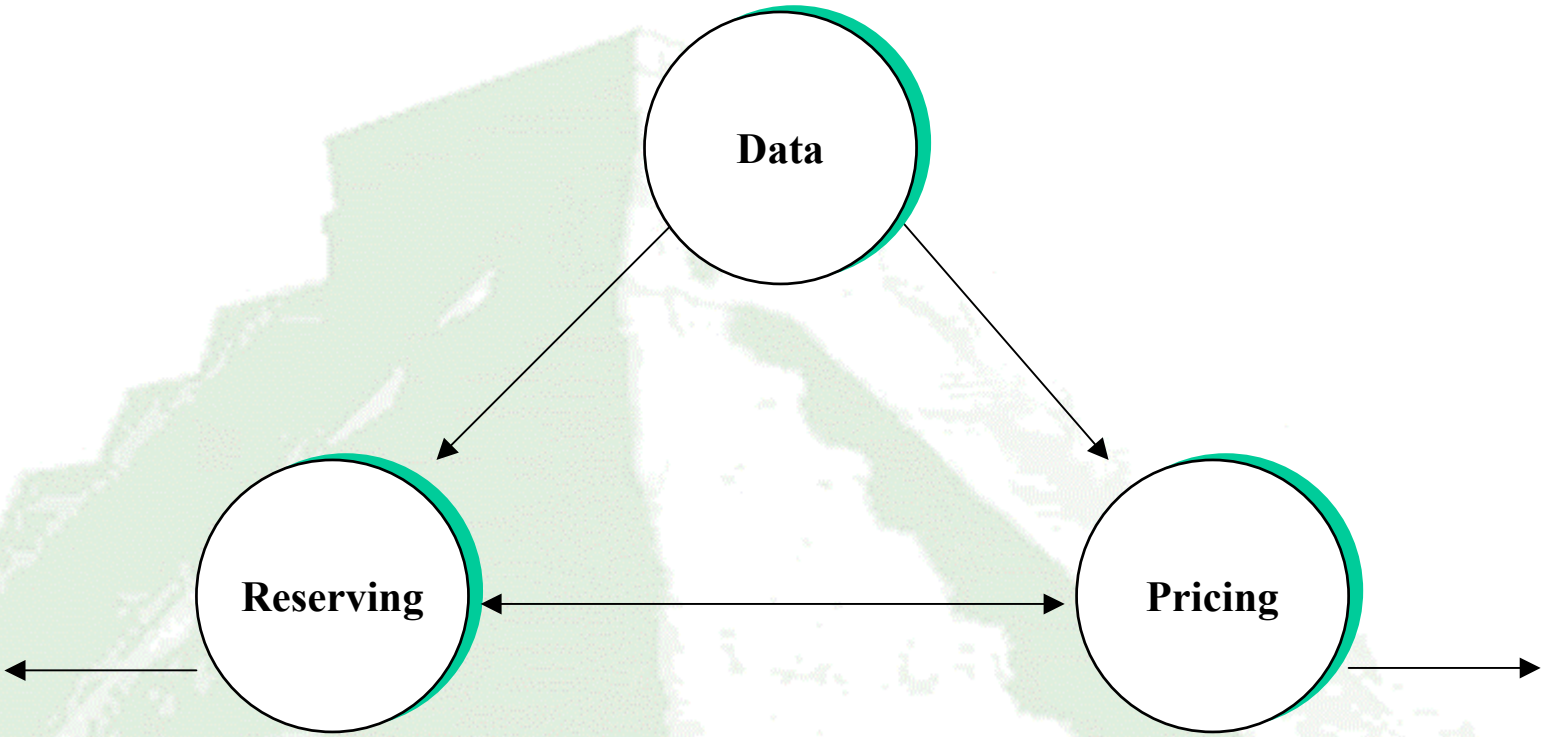
Fundamental Responsibilities of Actuaries



PRICING ISSUES – Development of Individual Company Rates vs. Industry –Based Tariffs

KEY: The development of individual company rates requires data that is accurate and at least partially credible.

- Credibility depends on stability of data as well as volume.
- The importance of company rates also depends on the degree that company business is different from the overall market.

PRICING ISSUES – Actuarially Derived Prices vs. Market Driven Prices

KEY: Companies should rely on actuaries to determine required rate levels in order to understand the financial implications of market driven pricing.

- It is acceptable for a company to make a strategic decision to deviate from actuarially indicated rates.
- However, that decision can not be strategic if the company does not understand the financial impact of the decision.

PRICING ISSUES – Niche Strategies

KEY: Actuaries can play an important role in diagnosing the strengths and weaknesses of a company's portfolio.

- Not every part of the portfolio performs equally well.
- Data analysis and diagnostic tools can identify what parts of the portfolio are causing unfavorable results.
- With this information, strategic underwriting decisions can be made or appropriate corrective pricing action can be taken.

PRICING ISSUES – Catastrophe Loads

KEY: It is important to incorporate all costs of insurance into the tariffs, even those for which we have little or no data.

- Need to be able to identify the perils or events that have the potential to generate catastrophic losses
- Need frequency/severity/geographic data to be able to build and populate predictive models
- Weather-related catastrophe models have become more sophisticated over time
- If catastrophe risk is ceded, the cost of reinsurance should be considered in pricing
- September 11 events are not calculable and, if they were, would probably not be affordable

RESERVING ISSUES – The Concept of Reserves

KEY: Reserves must make a provision for all future claim costs that will become payable.

- Case reserves – reserves assigned to known claims
- IBNR – Made up of two components:
  - IBNER – Incurred But Not Enough Reported – provision for future development on known claims
  - IBNYR – Incurred But Not Yet Reported – provision for future payments on insured losses that have occurred as of accounting date but have not been reported
- Reopened Claims – provision for future payments on claims closed as of the accounting date that may reopen due to circumstances not foreseen at the time the claims were closed
- Loss Adjustment Expenses – specific (allocated) claim adjustment expenses and unallocated (overhead) claim adjustment expenses

RESERVING ISSUES – The Concept of IBNR

KEY: IBNR cannot be calculated using calendar year analysis – historical data must be compiled over time by accident year, policy year, report year, or underwriting year to develop ultimate loss costs and IBNR.

- A simple example will help show this

Growing Company has five years of paid loss experience as shown below. Case reserves at the end of each year are zero.

Calendar Year	Paid Loss
1997	80,000
1998	120,000
1999	180,000
2000	270,000
2001	405,000

Individual claim detail underlying each calendar year is shown below

Accident Year	Report Year	Payment Year	Amount
1996	1997	1997	40,000
1997	1997	1997	40,000
1997	1998	1998	60,000
1998	1998	1998	60,000
1998	1999	1999	90,000
1999	1999	1999	90,000
1999	2000	2000	135,000
2000	2000	2000	135,000
2000	2001	2001	202,500
2001	2001	2001	202,500

The claim detail shows that each year there is one claim that gets reported and paid a year after it occurs – these claims represent IBNR as of the end of each accounting year and should be reserved for

Accident Year	Report Year	Payment Year	Amount
1996	**1997**	**1997**	**40,000**
1997	1997	1997	40,000
1997	**1998**	**1998**	**60,000**
1998	1998	1998	60,000
1998	**1999**	**1999**	**90,000**
1999	1999	1999	90,000
1999	**2000**	**2000**	**135,000**
2000	2000	2000	135,000
2000	**2001**	**2001**	**202,500**
2001	2001	2001	202,500

Re-configuring the data into accident year development triangles, allows one to project the needed IBNR

Incremental Paid Losses					
Accident Year	**12**	**24**	**36**	**48**	**60**
1997	40,000	60,000	0	0	0
1998	60,000	90,000	0	0	
1999	90,000	135,000	0		
2000	135,000	202,500			
2001	202,500				

Cumulative Paid Losses					
Accident Year	**12**	**24**	**36**	**48**	**60**
1997	40,000	100,000	100,000	100,000	100,000
1998	60,000	150,000	150,000	150,000	
1999	90,000	225,000	225,000		
2000	135,000	337,500			
2001	202,500				

Continuing the Accident Year Development Process

Cumulative Paid Losses					
Accident Year	**12**	**24**	**36**	**48**	**60**
1997	40,000	100,000	100,000	100,000	100,000
1998	60,000	150,000	150,000	150,000	
1999	90,000	225,000	225,000		
2000	135,000	337,500			
2001	202,500				

Incremental Development Patterns					
Accident Year	**12 to 24**	**24 to 36**	**36 to 48**	**48 to 60**	**60 to Ult**
1997	2.500	1.000	1.000	1.000	1.000
1998	2.500	1.000	1.000		
1999	2.500	1.000			
2000	2.500				
2001					

Projection of Ultimate Losses and IBNR

Accident Year	Incurred Losses	X	LDF	=	Ultimate Losses	-	Incurred Losses	=	IBNR
1997	100,000		1.000		100,000		100,000		0
1998	150,000		1.000		150,000		150,000		0
1999	225,000		1.000		225,000		225,000		0
2000	337,500		1.000		337,500		337,500		0
2001	202,500		2.500		506,250		202,500		303,750
Total	**1,015,000**				**1,318,750**		**1,015,000**		**303,750**

RESERVING ISSUES – Volatility of Reserves

KEY: There is 100% certainty that the future payment of losses will not exactly equal the carried reserves .

- Reserve estimates should take into account the degree of uncertainty inherent in its projection
- The amount of variability in reserves depends on the lines of business written, quality of the data, coverage provisions, legal and legislative environment and economic variables

RESERVING ISSUES – Actuarial Certification of Reserves

KEY: Actuarial certification of reserves requires some regulatory or sanctioning body oversight to set educational and experience requirements to qualify.

- The sanctioning body should have in place a Code of Professional Conduct by which the actuary should abide
- Since actuarial statements of opinion involve the public interest, actuaries should always be mindful of their obligation to not perform professional services unless qualified to do so

DATA ISSUES – What Data to Use

KEY: In order to determine what data to use, the actuary should understand the intended use of the analysis being performed.

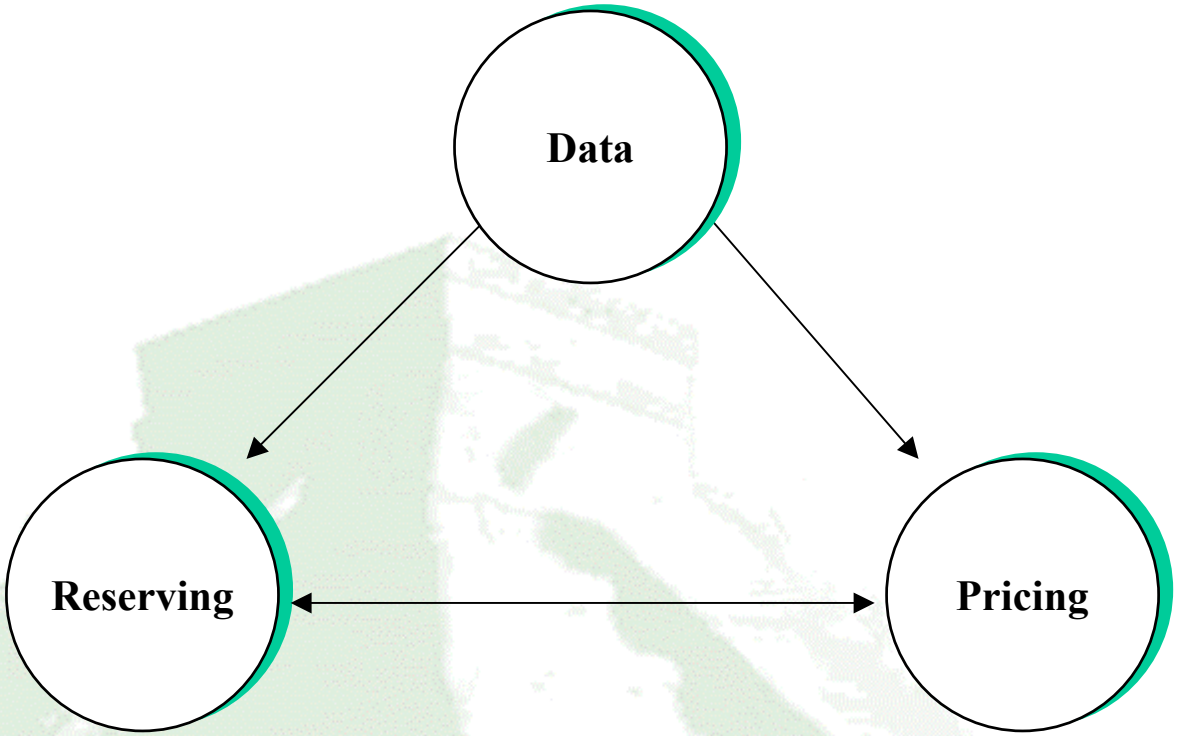
- Consider data desired vis-à-vis data available
- Select possible alternative data elements
- Determine whether imperfect data will materially bias results
- Determine what adjustments/modifications are needed because of imperfect data

DATA ISSUES – Compiling Company-Specific Data

KEY: Companies should construct databases capable of housing historical claim and exposure information with consideration of future data needs.

- Critical for the data to tie to financials – "One Set of Books"
- Need to balance the cost of collecting, compiling, and extracting data details with the importance and benefits of having such data

Closing Thought



- These three areas of responsibility are crucial for insurance industry success/survival - to be carried out requires skilled, thoughtful analysis
- Like the tripod that this diagram represents, remove one leg and the entire structure tumbles
- As actuaries, it is our responsibility to our employees and the public to not let this structure fall