PREMIUM RATING INDICES
Workshop
2001 GIRO / CAS Convention

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Summary of Workshop

- Background
- Objectives of workshop
- Definition of rating indices
- Simple example of application
- Uses
- Practical problems
- Lloyd's index
- Deriving the increase rate
- Other indices
- Future developments

Background

- Lloyd's forecasts

Illustrating The Need

1993	27,516	122,559	228,036	273,711	296,999	367,762	322,686	329,889
1994	19,683	108,410	160,948	242,419	267,695	295,877	304,183	
1995	14,290	92,940	206,527	257,099	305,884	333,454		
1996	5,160	81,388	174,825	188,510	208,793			
1997	5,415	89,431	177,752	280,701				
1998	10,001	95,059	222,572					
1999	23,542	142,460						
2000	15,844							

Illustrating The Need

1993	122	581	2,156	4,034	3,674	4,422	4,153	4,476
1994	159	1,836	2,704	5,718	6,721	7,212	7,361	
1995	381	3,575	8,329	12,434	11,783	12,270		
1996	276	6,892	13,430	9,487	10,939			
1997	124	3,017	5,523	10,981				
1998	968	6,118	10,260					
1999	328	6,043						
2000	108							

Background

- Lloyd's forecasts
- FSA

Objectives of Workshop

- Discuss potential uses
- Discuss practical issues & solutions
- Decide on next steps

Definition

- Index = System by which changes in the value of something, and the rate at which it changes, can be measured
- So, Rating Index = means of comparing the level of premium rates from one period to the next

Simple Example of an Index and Its Application to Reserving

		1993	1994	1995	1996	1997	1998	1999	2000
Rating Index	(1)	100	110	108	103	92	85	80	77
% Change	(2) = (1)/Prev(1) -1		10%	-2%	-5%	-11%	-8%	-6%	-4%

Simple Example of an Index and Its Application to Reserving

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Rating Index	(1)	100	110	108	103	92	85	80	77
% Change	(2) = (1)/Prev(1) -1		10%	-2%	-5%	-11%	-8%	-6%	-4%
Estimated ULR	(3)	85	80	81	85	103	95		
Adjusted ULR (1993 terms)	(4) = (3) * **(1) / [(1) @ [1993]]**	85	80	100	91	90	81		
Average of (4) (1993 - 1998)	(5)	91							
Prior ULR	(6) = (5) * **[(1) @ [1993]] / (1)**							113	118
Future % Development	(7)							20%	60%
IBNR % of Premium	(8) = (6) * (7)							23	71
Incurred % [Ratio]	(9)							93	95
Estimated ULR	(10) = (9) + (8)							116	167

Definition

- Different forms of index
- Make sure appropriate for use
  - Expected claim experience
  - Premium rate adequacy
  - Profitability
  - Incremental / Cumulative
  - Inflation
  - Prospective / After event

Uses

- Actual (from Questionnaire):
  - Reserving
  - Pricing analyses
  - Initial view of profitability / capital requirements
  - Understanding the insurance cycle
  - Decisions on targeting capacity utilisation
  - Business plan
    - Construction
    - Review

Uses

- Potential (from Questionnaire):
  - Input for DFA models
  - Justification / explanation of results to regulator
  - Assessing value of outwards reinsurance
  - Benchmark for underwriting performance
  - Explanation to brokers / clients on why rates have moved
  - Make underwriters aware of potential costs of writing in soft market

Uses

- Other Possible:
  - Monitoring underwriting performance v market
  - Marketing
  - Regulatory control of capital requirements
  - …?

Methods of Construction

- Actual (from Questionnaire)
  - Underwriter's view on rate changes
    - Asked annually
    - Asked for each risk
  - ULR at time of writing risk
  - Actual premium v Technical benchmark
  - Consider underlying business rate movements

Practical Problems (from Questionnaire)

- Need for Underwriter to do additional work
- Subjectivity
- Consistency across time
- Construction needs to reflect use
- How to allow for new business
- Allowance for changes in cover
- Delegated authorities / binders
- Allowance for outwards reinsurance
- Is Premium the best exposure measure anyway?

Practical Problems

- Treatment of non-renewed contracts
- Inwards reinsurance allowance for changes in cedants' rating levels

Lloyd's Premium Rating Index

- The need for the index
- Construction of the index
  - inception date
  - Frequency
  - Classes of business
  - Collection of data
  - Method of construction
  - Weakness of index

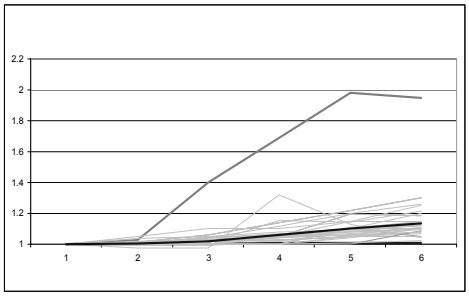
Classes of Business

- Aviation
  aviation hull, aviation liability, aviation product and aviation XOL
- Marine
  marine cargo, marine liability, marine hull, marine war, marine XOL and Yacht
- Energy
  offshore PD, onshore PD, liability

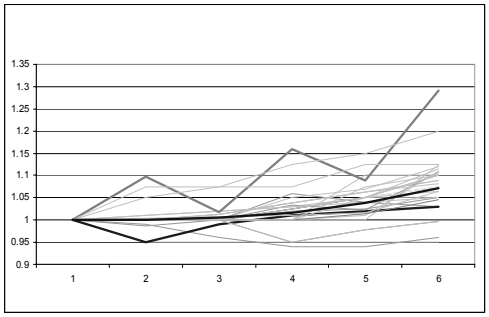
Classes of Business

- Non marine
  bankers bond, D&O, EL, engineering, extended warranty,GL, livestock, med mal, PA, political risks, PI, property (US / non US / direct / assumed / retro), specie
- Motor
  fleet, overseas, private comp, private non comp, UK motor cycles and UK other

Example of Returns



Example 2 of Returns



Deriving the Increase Rate

- Same aggregate cover provided
- Premium 1999 = 0.5m, 2000 = 0.55m
- 1999 = 20 partners, 2000 = 21 partners
- Cover on a claims made basis
- The increase in premium is caused by an increase in fees
- So what is the rate of increase?

Improvements

- Is the index of any value?
- What improvements can be introduced
  -currency split?
  -different splits within market?
  -any classes missing?
  -Is the frequency ok?
- What can managing agents do themselves

Other Indices

- Tillinghast motor index
- Tillinghast D&O Survey Rating Index
- CBSL market rate index
- Moody's underwriting & rating index
- AA British insurance Index
- Marsh Aviation News

Discussion Points

- Uses
- Construction issues
- Lloyd's index
- Future of the working party

Other Issues

- What should you do if the conclusion of the analysis is that business should only be written for certain parts of the cycle?
- What effect is better (& shared?) premium rating information going to have on the cycle?