

Questions from the 2007 Exam:

27. (4 points) A commercial general liability policy has premises/ operations exposure only.

The policy has been rated on an occurrence basis for many years and will continue to be rated on an occurrence basis when renewed.

When the policy renews it will have the following characteristics:

Exposure (Sales)	\$ 80,000,000
Basic Limits Premium	\$100,000
Basic Limit Underlying Rates	\$25,000
Expected Loss Ratio	65%

The pricing actuary has decided to calculate the experience modification factor for this policy using the "Present Average Company Rate Method" in the ISO CGL Experience and Schedule Rating Plan based on the following data:

<u>Policy Term</u>	<u>Sales</u>
Latest	\$ 56,000,000
2nd Latest	\$ 42,000,000
3rd Latest	\$ 32,000,000

Historical Loss Information (Latest Three Terms)

<u>Claim #</u>	<u>Indemnity</u>	<u>ALAE</u>	<u>Indemnity + ALAE</u>
001	\$1,000	\$0	\$1,000
002	\$2,500	\$0	\$2,500
003	\$0	\$64,000	\$64,000
004	\$ 30,000	\$0	\$30,000
Total	\$ 33,500	\$ 64,000	\$97,500

The actuary has decided to exclude the adjustment to reflect the ultimate level of losses.

Calculate the total ratable loss.

Supporting materials. Solutions to question 50 from the 1993 exam and question 33 from the 1997 Exam

Solutions to questions from the 1993 Exam:

Question 50. Determine the amount of basic limits expected losses to be included in the experience rating calculation.

Recognize that both the:

(a) **Annual BL company loss cost** by subline and the

(b) **Detrend factor**

for each of the given years of the experience period will need to be computed in accordance with Present Average Company Rate Method: (see page 20) in Appendix B

Step 1: Calculate the average annual per occurrence BL company rate for the policy being rated:

$$\begin{aligned} \text{Average annual per occurrence BL company rate} = \\ \frac{\text{BL premium for the policy being rated}}{\text{Exposures on the special u / w basis}} = \frac{60,000}{50,000} = 1.2. \end{aligned}$$

Step 2: Calculate the annual BL company loss cost by subline for each of the given years of the experience period:

$$\text{Annual BL loss cost} = (\text{Exposures on special u/w basis}) * (\text{BL rate}) * (\text{Co. ELR}).$$

Step 3: Since policies have historically been, and will continue to be, written on an occurrence basis, there is no need to compute policy adjustment factors (PAFs). However, D-Trend factors need to be computed.

Compared with the detrend factors computed in accordance with rule 4A, **less detrend is needed** since Subject loss cost is determined as a present rate * a historical exposure amount. Therefore, each of the detrend factors used in rule 4A would be multiplied by the cumulative exposure trend from the year of the experience period to the average policy written date during the effective period of the rates.

In this case, since detrend factors used in rule 4A are not given, we since there is no frequency trend compute "net" (Loss severity / Exposure) detrend factors:

Step 4: Compute the amount of basic limits expected losses (also known as Company Subject loss cost) to be included in the experience rating calculation.

$$\text{Company Subject loss cost} = \Sigma(\text{Annual BL Loss cost}) * (\text{PAF's}) * (\text{D-Trend}).$$

Solutions to questions from the 1997 Exam

Question 33.

(a) Write the formula to compute the **insured's subject loss cost**:

$$\text{Company (Insured) Subject Losses Cost} = \sum_{\text{subline}} \sum_{\text{3 years}} \text{BL Prem} * \text{current ELR} * \text{PAF}_1 * \text{PAF}_2 * \text{Detrend}$$

<u>Annual BL Prem for the policy rated</u>	<u>Company Expected Expected loss ratio</u>	<u>Annual BL Loss Cost for the policy rated</u>	<u>Experience Period</u>	<u>Detrend Factor</u>	<u>Company Subject Loss Cost</u>
(1)	(2)	(3) = (1)*(2)		(4)	(5) = (3)*(4)
100,000	.600	60,000	Latest Year	.900	54,000
100,000	.600	60,000	2nd latest year	.800	48,000
100,000	.600	60,000	3rd latest year	.700	<u>42,000</u>
					144,000

(b) and (c) Write the formulas to compute the **actual experience ratio** and the **experience mod**:

$$\text{AER} = \frac{\text{Actual limited losses} + \text{ARULL}}{\text{Company Subject Loss Cost}} \quad M = \frac{\text{AER} - \text{EER}}{\text{EER}} * Z.$$

(i) Compute actual basic limits losses to be included in the experience rating calculation:

Step 1: Define basic limit losses. ISO defines basic limit losses as \$25,000 combined single limit (BI & PD).

Step 2: Define and calculate actual basic limits loss and ALAE included in Mod Calculation:

Paid and O/S losses (including ALAE) with

(a) **indemnity** limited to basic per occurrence limits and

(b) **(indemnity + ALAE)** limited by the MSL

<u>No of Losses</u>	<u>Loss Amount</u>	<u>Losses</u>			<u>Limited Losses + Unlimited ALAE</u>	<u>Actual Loss + ALAE limited by the MSL</u>
		<u>Unlimited</u>	<u>Limited</u>	<u>ALAE</u>		
		(1)	(2)	(3)	(4) = (2)+(3)	(5)
10	10,000	100,000	100,000	Included	100,000	100,000
1	500,000	500,000	25,000	50,000	75,000	<u>35,000</u>
						135,000

Note: MSL was obtained from the table given (associated with risks producing < 200,000 in Subject LC.)

Supporting materials. Excerpt from our online study guide

Past CAS questions posed to date fall into one of four categories:

1. Rule 4A related questions (ignoring the need to account for policy adjustment factors). Read pages 6-7 and work problems from the following exams: '92,50; '94,4; '96,22; '97,33; 98,41; '03,4; '03,5;

2. Rule 4A related questions (incorporating the need to account for policy adjustment factors). Read pages 6-7 and review the discussion of tables 1 and 2 on page 9. Work problems from the following exams: '99,30; '01,27; '04,41; '05,28; '06,28

3. Appendix B: Present Average Company Rate Method. Read Appendix B and work problems from the following exams: '93,50;

4. Schedule Rating. Read page 8 and work problems from the following exams: '91,45; '97,9