

ISO.Rating.Peek

Reading: Insurance Services Office, Inc., Commercial General Liability Experience and Schedule Rating Plan.

Synopsis: In this article you'll learn the features of the ISO CGL rating manual which uses both experience and schedule rating. We demonstrate how to calculate the experience modification using each of the three methods from the manual. While the calculation of the experience modification forms the bulk of the potential exam questions we also cover in detail the various other rules which are used to determine whether experience or schedule rating is appropriate.

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Study Tips

In the exam you may be given the information you need from the manual directly in the exam question or you may be given a supplement consisting of pages from the manual. The information you'll be given will likely be the various tables rather than the actual rules, so your goal is to know how to apply the rules quickly and concisely which includes knowing where to look up the necessary information.

Since the numbers used in the schedule change from time to time, we'll always provide you with the numbers or excerpts of tables that you'll need to solve a problem. So if you're following along with the latest study kit from the CAS you may not have the same figures. However, you should make sure you can get to the same location in the study kit so you can be efficient with your time in the exam.

Estimated study time: 16 Hours (*not including subsequent review time*)

BattleTable

Based on past exams, the **main things** you need to know (*in rough order of importance*) are:

- How to calculate the Company Subject Loss Cost using the **Standard approach**.
- How to calculate the Company Subject Loss Cost using the **Present Average Company Rate approach**.
- How to determine the **experience modification**.
- Whether experience or schedule rating may be used and the associated range of **schedule modifications permitted**.

Questions from the Fall 2019 exam are held out for practice purposes. (They are included in the CAS practice exam.)

reference	part (a)	part (b)	part (c)	part (d)
E (2018.Fall #11)	Experience Modification - calculate	Schedule Credit - assess reasonability		
E (2017.Fall #9)	Experience Modification - calculate premium			
E (2015.Fall #9)	Experience Modification - calculate factor			
E (2014.Fall #8)	Ultimate Loss - adjust using experience			
E (2013.Fall #8)	Experience Modification - reverse engineer			
E (2012.Fall #14)	Large Losses - calculate minimum number			

[Full BattleQuiz](#)
[Excel Files](#)
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Important Note: To help you feel comfortable with the latest study kit we've put together a summary of the values you need to look up as well as complete solutions in case you want the details.

[Summary values and complete solutions to exam problems using the latest study kit](#)

In Plain English!

Overview

The ISO manual is used to experience and schedule rate Commercial General Liability risks. Policies may be written on an **occurrence** basis which covers claims that occur during the period the policy is effective. Or, policies may be written on a **claims-made** basis which covers any claim reported during the effective period irrespective of when the accident occurred.

Eligibility (Rules 2.E & 2.F)

To be eligible to use the experience rating in the ISO manual, a risk must have a credibility of at least 0.07 as determined using *Table 16* (found in Rule 16).

To use *Table 16* you need to be given or calculate the *Company Subject Loss Cost* (Expected Losses). We'll go into the calculation later in this wiki article.

To be eligible to use the schedule rating in the ISO manual, a risk must have a credibility of at least 0.03 as determined using *Table 16*.

Schedule Rating (Rule 9)

A schedule rating modification may be determined to account for risk characteristics that are not reflected in the policyholder's underlying experience. For example, if risk has recently moved to a new and improved premises this is not reflected in their past experience and so may merit a schedule rating credit.

There are six categories of schedule modifications in the ISO CGL manual. You should memorize the categories and range of modifications shown in the table below.

Risk Characteristic	Description	Range of Modifications
Location	Exposure Inside and Outside	± 5% inside, ± 5% outside
Premises	Care & Condition	± 10%
Equipment	Type, Care & Condition	± 10%
Classification	Peculiarities	± 10%
Employees	Selection, Training, Supervision, Experience	± 6%
Cooperation	Safety Program & Medical Facilities	± 2% each

An important part of the schedule rating process is the **maximum credit or debit** which limits the sum of the individual category schedule debits and credits to ± 25%.

When answering a question on schedule rating you should determine which of the categories fit the given scenario and assign a credit or debit within the range as you feel is appropriate. More than one answer will likely be acceptable so you should make sure you justify your answer. Lastly, don't forget to apply the maximum credit or debit cap if needed.

Experience Rating

Experience Used (Rule 4)

The experience period ends at least six months before the rating date, so the latest policy year is always incomplete and isn't used. The experience period should consist of the latest three full policy years of experience, or at least one complete policy year if data is unavailable.

Determination of Experience Modification (Rule 5)

Rule 5 is the main part of the ISO CGL manual. It outlines how to calculate the experience modification factor in three different scenarios. Regardless of the scenario, the **experience modification** is defined as $\text{Experience Modification} = \frac{\text{AER} - \text{EER}}{\text{EER}} \cdot \text{Credibility}$, where AER is the actual experience ratio and EER is the expected experience ratio.

To begin to use the experience modification formula we need to step back and examine some definitions.

The ISO CGL manual uses **basic limits** to determine loss costs for experience rating. While rare to be tested on the definition of basic limits, you should know this means the following (Rule 5A):

- \$100,000 combined single limit per-occurrence for bodily injury and property damage,
- \$100,000 per fire for fire damages,
- \$5,000 per person for medical expenses,
- \$100,000 per person or organization for personal or advertising injuries,
- Annual aggregate limit of \$200,000 for Products/Completed Operations and all other coverages.

Our first definition is the **Company Subject Loss Cost (CSLC)**. This is the total basic limits company loss costs, i.e. the basic limits expected losses including Allocated Loss Adjustment Expenses but excluding any other expenses. This total comes from summing over all of the experience years and sub-lines of business. The two common sub-lines are **Premises/Operations (Prem/Ops)** and **Products**.

There are three ways to calculate the CSLC, the standard approach and two ways of calculating it when the exposures being priced have undergone dramatic change. By **dramatic change** we mean the exposures being rated differ from those found in the experience period by more than we would expect due to inflationary pressure alone. An example of this is a company which introduces a new product or enters a new market – without an adjustment the exposures in the historical experience period won't accurately reflect the risk being rated.

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Standard Approach to Calculating the CSLC (Rule 5B)

Form a table which has a row for each experience year and sub-line of business. The columns in this are:

1. The **Basic Limits Expected Losses (BLEL)**. This can be determined in two ways depending on the information available. Either
 - For each sub-line, multiply the company Expected Loss Ratio (ELR) by the annual basic limits company premium (the manual rate for the risk). Or,
 - If only total annual company premium is available, apply *Rule 10* (see below).
2. **Policy Adjustment Factor (PAF) 13B** (Found in Rule 13, Table 13.B)
3. **Policy Adjustment Factor (PAF) 13C** (Found in Rule 13, Table 13.C)
4. **Detrend Factor** (Found in Rule 14: Table 14, Column 5B)
5. **Total**: This column is the product of BLEL, PAF 13B, PAF 13C and the Detrend factor for each row.

The CSLC is the sum of the Total column over all rows in the table.

Let's look at the purpose of the Policy Adjustment and Detrend factors. The risk we're trying to price will be a certain type such as an occurrence or 2nd-year claims made policy. Then the

- **Policy Adjustment Factor 13B** takes the risk type being priced and translates it to on an occurrence basis.
- **Policy Adjustment Factor 13C** translates from an occurrence risk to the policy type used in the *historical experience period*.
- **Detrend Factor** takes the expected losses and moves them back to be at the same level as the actual historical experience.

Important Observation

PAF 13B only varies by sub-line because the policy type being rated does not change. Whereas, PAF 13C and the Detrend factor vary by both sub-line and experience year.

Now let's put this into practice with the following example from the ISO CGL manual.

Calculate the CSLC using the Standard Approach

Present Average Company Rate Approach (Rule 5C1)

One of the ways of pricing a risk which has undergone dramatic change between the historical experience period and today that is not due to inflation is to use the **Present Average Company Rate** approach. To apply this method you need a **special underwriting basis** which means a way of adjusting for the change in exposures when calculating the Basic Limits Expected Losses (BLEL). A common way of doing this is using gross sales receipts as this data is often readily available.

In the standard approach the BLEL was the product (by sub-line) of the expected loss ratio (ELR) and the annual company premium. In the present average company rate approach the BLEL is instead the manual rate per prospective exposure, multiplied by the historical exposure times the ELR.

Once the BLEL is calculated, you proceed with the same table used in the standard approach, adding columns for PAF 13B, PAF 13C and the Detrend factor before taking the product across the rows and summing the total column to get the CSLC. The Detrend factor is now read from Rule 14: Table 14, **Column 5C**.

The following example from the source helps solidify this material.

Calculate the CSLC using the Present Average Company Rate Approach

Historical Exposures At Present Company Rates Method (Rule 5C2)

The other approach for dealing with dramatic changes in the exposures is to use the **Historical Exposures At Present Company Rates** approach. This requires information about the exposures, plus the current manual rates for each of the policies in the historical experience period.

There are two key adjustments with this approach.

1. The BLEL is calculated by year and sub-line using the historic exposures multiplied by the basic rate for that policy type today, multiplied by the **increased limit factor for the basic per-occurrence limit and the actual historical aggregate limit**, then finally multiplied by the Expected Loss Ratio.
2. Since we're using today's rates for each of the policy types there is no need for the policy adjustment factors. So the CSLC is the BLEL multiplied by the Detrend factor.

As with the Present Average Company Rate approach, the Detrend factor is read from Rule 14: Table 14, **Column 5C**.

Alice: "This sounds complicated so we'd best look at an example."

Calculate the CSLC using the Historical Exposures at Present Company Rates Approach

Finding the EER and MSL (Rule 16)

Now that you've obtained the Company Subject Loss Cost (Expected Losses) you can use the table in Rule 16 to find three key pieces of information.

1. Credibility (use this to determine eligibility)
2. Expected Experience Ratio (EER) — this is needed in the experience modification formula.
3. Maximum Single Loss (MSL) — this is used when calculating the Actual Experience Ratio.

Calculating the AER (Rules 5D and 5E)

The **Actual Experience Ratio (AER)** is given by $AER = \frac{\text{Expected Future Development} + \text{Loss History}}{\text{CSLC}}$.

The **expected future development** is calculated by year and sub-line and then summed. For each year and sub-line take the Total column entry in the CSLC calculation, multiplied by the EER and further multiplied by a Loss Development Factor (LDF). The LDFs are obtained from Rule 15.

It's important to note that Claims Made policies always have an LDF of 0.

The expected future development may also be referred to as the **Adjustment to Reflect Ultimate Level of Losses**.

The **loss history** is calculated by year and sub-line and consists of the incurred loss (excluding ALAE) capped at the basic per-occurrence limit which is then added to the ALAE before being capped by the Maximum Single Loss. Since the losses are capped at the basic limit, this means the ISO CGL plan responds mostly to frequency.

Now you have all of the pieces to calculate the experience modification. Remember, if the experience modification is positive then it is a debit and if it is negative then it's a credit.

The following example shows how to tie it all together.

Calculate the Experience Mod Factor given the CSLC

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Other Rules

The following rules are probably less likely to be examined but you should be aware of them to be fully prepared. Rules 5H, 8 and 12 are good twists that could come in an integrative question and the CAS might expect you to know them without providing the relevant pages from the manual. Whereas Rules 10 and 11 would likely require the exam to give you some guidance or additional tables to use.

Deductible Coverage (Rule 5H)

If the experience used did not include a deductible in the policy provisions yet the prospective policy provisions include a deductible then the experience must be adjusted to match the prospective deductible. This is done by subtracting the deductible from the indemnity amount before capping by the Maximum Single Loss amount if necessary. All Allocated Loss Adjustment Expenses are included without adjustment.

If the prospective policy does not incorporate a deductible yet the historical experience did have a deductible then the historical experience should be restated to be ground-up.

Company Expense Variation (Rule 8)

If the Expected Loss Ratio (ELR) for the class of risks differs from the actual expected loss ratio for the risk then multiply the manual premium by the experience modification factor and the **Expense Variation Factor (EVF)**, where $EVF = \frac{\text{ELR underlying for the risk class}}{\text{Actual ELR for the risk}}$.

Basic Limits Premiums Aren't Available (Rule 10)

If the annual basic limits premium is not available, i.e. the annual premium is at the actual per-occurrence limit purchased as well as at the actual aggregate limit purchased, then an adjustment is required as follows.

1. If the company consists of more than one risk class then use the figures for the **predominant class** which is the class with the most premium.
2. Find the annual company premium at the actual per-occurrence and aggregate limits purchased.
3. For each sub-line determine the present (current) basic limits rates, the increased limits factors at the basic per-occurrence limit and the actual aggregate limit, as well as the ILFs at the actual per-occurrence and aggregate limits.
4. For each sub-line create two products by multiplying the basic limit company rates by each of the ILFs respectively.
5. Sum the products across the sub-lines ("the totals").
6. Compute the annual basic limits company premium as the annual company premium multiplied by the ratio of the totals above.
7. Allocate the annual basic limits company premium by sub-line by multiplying it by the ratio of the sub-line present basic limits to the total.
8. Proceed as in the standard method by multiplying by the ELR to get the annual basic limits expected company loss cost (BLEL) for each sub-line.

Alice: "Well that makes sense... Best do an example."

Calculate the Basic Limits Expected Loss from Annual Premiums at Actual Limits

Change of Carrier (Rule 11)

If the insured changes carrier then prior experience may be unavailable **at current values**. In this situation the actuary must be careful about selecting appropriate loss development factors. The maturity of a loss year is defined as the age in months between the policy effective date and the evaluation date. So watch out for if the various policy years have their losses evaluated at **different** evaluation dates.

If the experience with a carrier is not a full year then Table 11 provides loss development factors to be used in place of those found in Table 15. The LDFs in Table 11 both complete the partial policy year and develop it to ultimate.

Conversion of Plan to Company Premium Basis (Rule 12)

Instead of using the annual company loss costs, Rule 12 allows you to use the annual company premium. To do so you must adjust the values found in Rule 16 as follows:

1. Multiply the Expected Experience Ratios by the Expected Loss Ratio for the company.
2. For the **0.03 credibility entry** in Table 16, divide each of the upper and lower bounds of the company subject loss cost range by the ELR respectively. This converts expected losses to premiums.
3. For credibility entries of 0.04 or higher divide only the upper bound of the company subject loss cost range by the ELR. The lower bound is automatically \$1 higher than the prior upper bound.
4. There are no adjustments to the credibility or Maximum Single Loss entries.

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