6.3 Summary   🕐 **5m**

Using earned premiums, the ultimate claims can be expressed as

$$\text{Ultimate Claims} = \underbrace{\frac{\text{Expected Claims}}{\text{Earned Premium}}}_{\text{Expected Loss Ratio}} \times \text{Earned Premium}$$

and using earned exposures

$$\text{Ultimate Claims} = \underbrace{\frac{\text{Expected Claims}}{\text{Earned Exposures}}}_{\text{Expected Pure Premium}} \times \text{Earned Exposures}$$

In both equations, the ratio is referred to as an expected loss ratio.

Key Assumptions

- The primary assumption of the expected claims technique is that an actuary can more accurately estimate total unpaid claims using an a priori (or initial) estimate rather than relying solely on the claims experience observed to date.

- In some cases, the claims data reported to date may offer limited insight into the ultimate claims, particularly when compared to the a priori estimate.

Uses for the Expected Claims Method

The expected claims method works well:

- When an insurer enters a new line of business or territory.

- When operational or environmental changes make historical data unreliable.

- When data is limited or unavailable.

- When development factors for early maturities are highly leveraged.

Determining the ECR

1. **Adjust the historical data.** This includes on-leveling the premium, adjusting for legal and environmental changes, and applying trends.

2. **Calculate the average claim ratios.** Once the data is adjusted, the actuary calculates different averages of historical claim ratios.

3. **Select the ECR.** The final step is to choose an ECR based on the calculated averages and actuarial judgment.

Analyzing the Expected Claims Method

The EC method implicitly ignores environmental changes, which makes it a suitable choice in unstable environments where other methods are distorted.

Description	Impact on Expected Claims Method
Increase in claim ratios	The EC method reflects changes from the years used to determine the ECR; if not captured, ultimate claims may be understated.
Increase in case outstanding adequacy	No effect
Change in product mix	Can be distorted when different lines of business have significantly different ECRs