Summary 10m

Insurance ratemaking is unique because the cost of the product is unknown at the time of sale. Its primary goal is to ensure that premiums cover all anticipated costs while achieving targeted underwriting profit over the rate period. Ratemaking is prospective and maintains balance in the fundamental insurance equation at both the aggregate and segment levels. This section also introduces essential insurance terms and ratios related to ratemaking.

Basic Insurance Terms

- Premium: The amount the insured pays for insurance coverage.
  - Written premium: The total premium of all policies issued during a specified period.
  - Earned premium: The portion of the written premium for which coverage has already been provided as of a specific point in time.
  - Unearned premium: The portion of the written premium for which coverage has not yet been provided as of a specific point in time.
  - In-force premium: The full-term premium for policies that are still active at a specific point in time.
- Exposure: The basic unit of risk that underlies the insurance premium.
  - Written exposures: The total exposures of all policies issued during a specified period.
  - Earned exposures: The portion of the written exposures for which coverage has already been provided as of a specific point in time.
  - Unearned exposures: The portion of the written exposures for which coverage has not yet been provided as of a specific point in time.
  - In-force exposures: The number of insured units that are exposed to loss at a specific point in time.
- Claim: A demand for indemnification.
  - Open claim: Claim that has not been settled.
  - Closed claim: Claim that has been settled.

- Claimant: The person making the claim.
- Date of loss/accident date/occurrence date: The date when the event that resulted in the loss occurred.
- Report date: The date the claim is reported.
- Unreported/incurred but not reported (IBNR) claims: Claims that are not known to the insurer.
- Loss: The amount of compensation paid or payable to the claimant.
  - Paid losses: The amount that has been paid to claimants.
  - Case reserve/case outstanding: An estimate of the amount required to ultimately settle any reported claim, excluding any payments already made.
  - Reported loss/case incurred loss: The sum of paid losses and the current case reserve for a claim.
  - Ultimate loss: The amount needed to close and settle all claims for a defined group of policies.
- Incurred but not reported (IBNR) reserve: The estimated amount required to ultimately settle all unreported claims.
- Incurred but not enough reported (IBNER) reserve: The difference between the estimated amount required to ultimately settle the reported claims and the aggregate reported losses at a given valuation date.
- Loss adjustment expenses (LAE): Expenses incurred in the process of settling claims.
  - Allocated loss adjustment expenses (ALAE): LAE that are directly attributable to a specific claim.
  - Unallocated loss adjustment expenses: LAE that cannot be attributed to the processing of a specific claim.
  - Defense and cost containment (DCC): Expenses related to defense, litigation, and cost containment services.
  - Adjusting and other (A&O): LAE not included in DCC.
- Underwriting expenses/operational and administrative expenses: Expenses incurred in the acquisition and servicing of policies.

- Commissions and brokerage: The amounts paid to insurance agents or brokers as compensation for generating business.
- Other acquisition costs: Expenses paid to acquire business other than commission and brokerage.
- Taxes, licenses, and fees: All taxes, licensing fees, and miscellaneous fees paid by the insurer, excluding federal income taxes.
- General expenses: The remaining expenses associated with the insurer's operation and any other miscellaneous costs.

- Underwriting profit: The profit generated by an insurance company through its course of business.

Fundamental Insurance Equation

$$\text{Premium} = \text{Losses} + \text{LAE} + \text{UW Expenses} + \text{UW Profit}$$

Key points to consider when performing ratemaking based on the fundamental insurance equation:

1. Ratemaking is prospective.
2. Balance should be attained at the aggregate and individual levels.

Basic Insurance Ratios

$$\text{Frequency} = \frac{\text{Number of Claims}}{\text{Number of Exposures}}$$

$$\text{Severity} = \frac{\text{Losses}}{\text{Number of Claims}}$$

$$\text{Pure Premium} = \frac{\text{Losses}}{\text{Number of Exposures}} = \text{Frequency} \times \text{Severity}$$

$$\text{Average Premium} = \frac{\text{Premium}}{\text{Number of Exposures}}$$

$$\text{Loss Ratio} = \frac{\text{Losses}}{\text{Premium}} = \frac{\text{Pure Premium}}{\text{Average Premium}}$$

$$\text{LAE Ratio} = \frac{\text{Loss Adjustment Expenses}}{\text{Losses}}$$

$$\text{UW Expense Ratio} = \frac{\text{UW Expenses}}{\text{Premium}}$$

$$\text{Operating Expense Ratio} = \text{UW Expense Ratio} + \frac{\text{LAE}}{\text{Earned Premium}}$$

$$\begin{aligned}\text{Combined Ratio} &= \text{Loss Ratio} + \frac{\text{LAE}}{\text{Earned Premium}} + \frac{\text{UW Expenses}}{\text{Written Premium}} \\ &= \text{Loss Ratio}\,(1 + \text{LAE Ratio}) + \frac{\text{UW Expenses}}{\text{Written Premium}}\end{aligned}$$

$$\text{Retention Ratio} = \frac{\text{Number of Policies Renewed}}{\text{Number of Potential Renewal Policies}}$$

$$\text{Close Ratio} = \frac{\text{Number of Accepted Quotes}}{\text{Number of Quotes}}$$