

Bruin Actuarial Society

Tenth Annual Case Competition 2022

Written by



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INSURANCE

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Instructions & Details

Thank you for registering for BAS's Tenth Annual Case Competition! Please refer to your team number for the duration of the competition.

Please remember the following:

1. Use Campuswire (code: 9783) to ask any questions about the case or clarify logistics. Note that you may NOT receive assistance from any outside sources, including, but not limited to, starting a thread on other online forums, consulting with industry professionals or other students, and discussing the case with professors. Your team may be subject to disqualification if you are found violating this rule. If in doubt about whether a resource is allowed, please ask us!
2. Your deliverables are due via email to bruinactuaries@gmail.com at **5PM PT on Friday, 1/14** (no late submissions accepted). Your email should include the following:
 - a. Subject Line: Team XX 2022 Deliverables
 - b. 2022_Team_XX_Slides.pptx
 - c. 2022_Team_XX_Slides.pdf
 - d. 2022_Team_XX_Workfiles.xlsx(/.xlsm, .xlsb, etc.)
 - e. 2022_Team_XX_Summary.pdf
 - f. Points will be deducted for using different filenames/subject line, or submitting in a .zip.
3. First round presentation will take place between 5PM to 10PM on Friday, 1/14 via Zoom. Sign-ups for 20-minute time slots will be sent out later this week. If your team has other commitments that day and you can only make specific time slot(s), please reply to this email letting us know ASAP.
4. If your team decides to drop out of the competition, please email us with the subject: 2022 TEAM XX DROPPING OUT.
5. Dress in business professional to present.

Four teams will move on to the final presentation and present to a panel of accomplished actuaries from various industries and companies. The winning team will receive a cash prize of \$100 per each participant. The final presentation will be held at 6PM PT on Friday, 1/21 on Zoom.

Case Question

You are an actuarial analyst at Bruin Mutual. You have been tasked with completing a reserving review for three lines of business: personal auto physical damage (physdam), personal auto liability, and homeowners property. Your reserving team is newly established and needs to build new tools and processes to ensure accuracy and efficiency on an ongoing basis. Your analysis will be presented to the Chief Reserving Actuary.

Part 1:

Create a workbook which can readily accept new data and organize it to support a new reserve analysis each reserving cycle. The tool should accept a dataset in the provided format as input, and generate at minimum the following diagnostics and tools:

- Annual cumulative reported and paid dollar triangles
- Annual cumulative reported, and paid claim count triangles
- Annual average paid and reported claim severity, and average case outstanding triangles
- Reserving method calculations:
 - Paid chain ladder method
 - Reported chain ladder method
 - Expected method
 - Bornheutter-Ferguson method
 - One of the Cape Cod, Case Outstanding, Frequency-Severity, or Berquist-Sherman methods
- A summary of the indicated ultimate loss for each method, which allows the analyst to select a final ultimate loss for each accident year.

Part 2:

- Provide one pro and one con of each reserving method included in your tool
- Using the provided dataset, for each LOB:
 - Identify any notable shifts or abnormalities in your data.
 - Recommend ultimate loss selections for each AY 2011-2020.
 - Provide relevant analysis and diagnostics to support your selections.
- Your team has limited actuarial resources available, and in future reserving periods, hopes to reduce the amount of time needed to complete the reserve analysis by standardizing the methods used on one line of business. Provide a recommendation as to which line of business should be standardized to minimize reserving risk, and the standardized methods you will use on that line.

Case Question (Cont.)

Part 3:

Most reserving work is done using “xCAT” data, excluding losses from large weather events (often referred to as catastrophes or “CATs”). CAT reserve estimates must be reported to management and booked to financial statements on a monthly basis, and so CAT losses are estimated through a separate CAT reserving process. Explain why it is necessary for CAT reserving to be done separately, and list three challenges that are unique to CAT reserving.

Notes on the dataset:

- The *Earned Premium* tab lists the premium earned for each LOB during each accident year
- Claims data is evaluated from 1/1/2011 to 12/31/2020.
- Each claim occurred on the listed occurrence date (*occurrenceDate*), but is unknown to your insurance company until the date it is reported (*reportDate*). There might be some claims that occurred during the evaluation period, but were not reported in time to make it into your dataset.
- Each claim has an initial reserve estimate set (*initialReserve*) on the date the claim is reported (*reportDate*), and a single payment (*Paid*) made on the date the claim is closed (*settlementDate*).
- Claims cannot reopen after being closed.
- *status* indicates the open/closed status of each claim as of 12/31/2020.