

## **Property & Casualty Insurance**

You are currently working as a personal auto pricing actuary and your company is contemplating the possibility of adding credit score to the current rating structure. Due to the continuous nature of the credit score variable, you have decided to split your analysis into five equal bands based on the number of policies.

- 1. The vendor has given you policyholder data in Exhibit 1, along with the credit score variable that your company requested. Please analyze if credit score would be a meaningful variable to add to your company's current rating algorithm. If yes, what would be your suggested rating curve?**
- 2. There are many considerations when implementing a new rating variable into your product. Briefly discuss five of the criteria for a good rating variable. How does credit score fare against these five criteria?**

Due to various IT and financial constraints, your company has decided against implementing credit score as a new rating variable. However, upper management is aware that many other companies will be adopting credit score into their calculations. To better understand the impact of this decision, you have been tasked with forecasting the company financials for the next three years.

- 3. Using the given retention and close ratio estimates in Exhibit 2 and the assumption that rates will stay constant, please forecast the number of policies, amount of premium, and loss ratio by the end of year three for:**
  - a. The renewal book of business**
  - b. The new business**
  - c. The company as a whole**

Now it is three years later and your company has decided to reassess the segmentation power of credit score.

- 4. For your current book of business in Exhibit 3, re-split the credit banding and perform the same analysis you did for question 1. What do you notice? What can you conclude?**
- 5. Recent litigation has made this variable into a hot topic. Most departments of insurance have thus banned insurers from rating on credit score. However, given your previous analysis, you still believe credit score to be valuable. Suggest some ways that your company can still utilize this variable to achieve better results.**