

STAT 479
Quiz 6
Spring 2022
April 21, 2022

1. The Ford Home Insurance Company has the following lag development ratios for cumulative payments for Homeowners coverage based on the chain ladder method:

Development Years	Link Ratio
1/0	1.50
2/1	1.20
3/2	1.05

There is no further development after three years.

For accident year 2021, the earned premium was 7,000,000. The expected loss ratio was 0.75. The claims paid in 2021 totaled 2,800,000.

For the claims from accident year 2021, determine the reserves as of December 31, 2021 using:

- a. The Loss Ratio Method

Solution:

$$\text{Loss Reserve} = (\text{Earned Premium})(\text{Expected Loss Ratio}) - \text{Claims Paid}$$

$$=(7,000,000)(0.75) - 2,800,000 = 2,450,000$$

b. The Claims Ladder Method

Solution:

$$\text{Loss Reserve} = (\text{Claims Paid})(f_{ULT}) - (\text{Claims Paid})$$

$$= (2,800,000)[(1.50)(1.20)(1.05)] - 2,800,000$$

$$= 2,492,000$$

c. The Bornhuetter-Ferguson method.

Solution:

$$\text{Loss Reserve} = [(\text{Earned Premium})(\text{Expected Loss Ratio})] \left(1 - \frac{1}{f_{ULT}} \right)$$

$$= [(7,000,000)(0.75)] \left(1 - \frac{1}{(1.50)(1.20)(1.05)} \right)$$

$$= 2,472,222$$