18. (1.5 points)

Given the following data as of December 31, 2013:

Accident Year	On-level Earned Premium	Reported Claims	Reported Development Factor to Ultimate	Expected Claims Ratio
2010	25,000	11,000	1.05	57.9%
2011	26,000	13,000	1.10	57.9%
2012	28,000	10,000	1.30	57.9%
2013	30,000	12,000	1.80	57.9%

a. (1.25 points)

Calculate the IBNR for accident year 2013 using the Benktander technique.

b. (0.25 point)

The Benktander technique can be viewed as a credibility weighting of other common techniques. Identify these techniques.

QUESTION 18	
TOTAL POINT VALUE: 1.5	**LEARNING OBJECTIVE: B3**
SAMPLE ANSWERS	

Part a: 1.25 points

Accepted Answer 1

BF Ultimate = 30,000(.579)(1 – 1/1.8) + 12,000 = 19,720
Benktander IBNR = 19,720(1 – 1/1.8) = 8,764.44

Accepted Answer 2

IBNR Using Bornhuetter-Ferguson Technique
30,000(0.579)(1 - 1/1.8) = 7,720

IBNR Using Reported Development Technique
12,000(1.80) – 12,000 = 9,600

IBNR Using Benktander Technique
9,600(1/1.8) + 7,720(1 – 1/1.8) = 8,764.44

Part b: 0.25 point

Accepted Answer 1
The Bornhuetter-Ferguson and Development techniques

Accepted Answer 2
BF Technique and Chain-Ladder Technique

Accepted Answer 3
Development Technique/Expected Claims Technique

EXAMINER'S REPORT

The candidate was expected to know how to apply the Benktander technique (and by extension, the B-F technique) to a set of summarized data. The candidate was also expected to know the credibility analogy for the Benktander technique.

Candidates generally scored well. There was information included that was not necessary to calculate the correct answer, and in several cases this resulted in candidates providing more than was necessary for full credit or using the additional information in the calculation incorrectly.

Part a

The candidate was expected to know how to apply the Benktander technique (and by extension, the B-F technique) to a set of summarized data.

To obtain full credit, the candidate needed to calculate the B-F ultimate (or IBNR if using the credibility-weighting method for Benktander), including the correct formula or value for the unreported claims %. The candidate had to calculate the Benktander IBNR correctly, showing sufficient work to demonstrate a correct understanding of the Benktander method. The majority of candidates were able to calculate the Benktander IBNR correctly.

Common errors included:
- Providing the Benktander Ultimate, instead of the IBNR as asked
- Erroneously including the expected claims ratio in the Benktander formula
- Using information from years other than 2013 in calculating the solution

Part b

The candidate was expected to know two techniques which can be credibility weighted together to obtain the Benktander estimate.

To obtain full credit, the candidate had to provide two correct general techniques (i.e., not specific techniques such as paid or reported methods) since the question called for the Benktander technique without qualification rather than (for example) Reported Benktander. A fair number of candidates received full credit for this part.

Common errors included:
- Limiting the response to a specific technique (e.g., Reported development technique)
- Listing Expected claims and B-F as the two techniques
- Listing more than two methods, because three methods cannot be credibility weighted to obtain the Benktander estimate
- Many candidates wrote more than was required for this question, for example providing the full credibility formula/weights.