23. (2.75 points)

Given the following information as of December 31, 2015:

Case Outstanding ($) as of (months)

Accident Year	12	24	36	48
2012	3,970	4,115	2,730	1,347
2013	3,680	3,760	4,560	
2014	3,690	7,380		
2015	6,230			

Paid Claims ($) as of (months)

Accident Year	12	24	36	48
2012	3,680	7,360	11,040	13,800
2013	3,520	7,040	10,560	
2014	3,360	6,720		
2015	3,520			

Open Claim Counts as of (months)

Accident Year	12	24	36	48
2012	238	245	171	63
2013	222	230	179	
2014	220	255		
2015	270			

Calendar Year	Written Premium
2014	$34,500
2015	$37,500

- Annual severity trend = 10.0%.
- Claims are fully developed by 48 months.
- Accident year 2015 initial expected claim ratio = 65.0%.
- Policies are annual, and are written uniformly throughout the year.
- There have been no rate changes since 2013.
- There is no premium trend.

Calculate the unpaid claims for accident year 2015 using the reported Bornhuetter-Ferguson technique adjusting for the change in case reserve adequacy.

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EXAMINER'S REPORT

Candidates were expected to calculate unpaid claims for accident year 2015 using the reported Bornhuetter-Ferguson technique adjusting for the change in case reserve adequacy. Since the question stated to adjust for the change case reserve adequacy, candidates were expected to recognize the need for a Berquist-Sherman adjustment. This would result in a more appropriate development pattern than that given by the standard reported development (Chain Ladder) technique being performed on a triangle with no adjustments.

Common mistakes included

- Detrending case outstanding instead of average case outstanding
- Using CY 2015 WP in the BF calculation instead of deriving CY 2015 EP
- Using the reported development ultimate in calculation of unpaid claims instead of the reported BF ultimate
- Calculating the BF expected unreported amount (i.e. IBNR) as a final answer, neglecting to add the accident year 2015 case outstanding.

QUESTION 23	
TOTAL POINT VALUE: 2.75	**LEARNING OBJECTIVE: B3, B5, A2**

SAMPLE ANSWERS

Sample Answer 1

Berquist-Sherman adjustment for change in case adequacy

Average Case Outstanding
Case Outstanding / Open Claim Count

AY	12	24	36	48
2012				21.38
2013			25.47	
2014		28.94		
2015	23.07			

Adjusted Average Case Outstanding
Detrend latest diagonal using 10% trend

AY	12	24	36	48
2012	17.34	23.92	23.16	21.38
2013	19.07	26.31	25.47	
2014	20.98	28.94		
2015	23.07			

Adjusted Reported Claims
Adjusted Average Case Outstanding * Open Claim Count + Paid Claims

AY	12	24	36	48
2012	7,806	13,220	15,000	15,147
2013	7,753	13,091	15,120	
2014	7,975	14,100		
2015	9,750			

Loss Development

AY	12-24	24-36	36-48	
2012	1.694	1.135	1.010	
2013	1.688	1.155		
2014	1.768			Tail
Str Avg	1.717	1.145	1.010	1.000
CDF	1.985	1.156	1.010	

Earned Premium

1/1/2015
UEPR = (0.5) * (34,500) = 17,250

1/1/2016
UEPR = (0.5) * (37,500) = 18,750

CY Earned Premium = CY Written Premium - Change in Unearned Premium Reserve

CY 2015 EP = 37,500 - (18,750 - 17,250) = 36,000

BF Projected Ultimate

BF Ultimate = (CL Proj Ult)*(% Rept) + (ELR Proj Ult)*(% Unrept)

% Rept = 1.0 / 1.985 = .504
% Unrept = 1.0 - .504 = .496
CL Proj Ult = (3,520 + 6,230) * (1.985) = 19,354
ELR Proj Ult = (.65)*(36,000) = 23,400

BF Ultimate = (19,354)*(.504) + (23,400)*(1.0 - .504)
BF Ultimate = 21,361

Unpaid

Unpaid = Ultimate - Paid = 21,362 - 3,520 = 17,841

Sample Answer 2

Berquist-Sherman adjustment for change in case adequacy

Average Case Outstanding
Case Outstanding / Open Claim Count

AY	12	24	36	48
2012				21.38
2013			25.47	
2014		28.94		
2015	23.07			

Adjusted Average Case Outstanding
Detrend latest diagonal using 10% trend

AY	12	24	36	48
2012	17.34	23.92	23.16	21.38
2013	19.07	26.31	25.47	
2014	20.98	28.94		
2015	23.07			

Adjusted Reported Claims

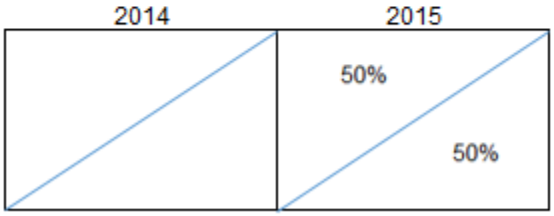
Adjusted Average Case Outstanding * Open Claim Count + Paid Claims

AY	12	24	36	48
2012	7,806	13,220	15,000	15,147
2013	7,753	13,091	15,120	
2014	7,975	14,100		
2015	9,750			

Loss Development

AY	12-24	24-36	36-48	
Vol Wgt	1.717	1.145	1.010	1.000
CDF	1.985	1.156	1.010	

Earned Premium



2015 EP = (0.5)*(34,500) + (0.5)*(37,500) = 36,000

BF Projected IBNR

BF IBNR = Expected Unreported = (ELR)*(EP)*(% Unrept)

BF IBNR = (.65)*(36,000)(1.0 - (1.0 / 1.985))
BF IBNR = 11,612

Unpaid

Unpaid = IBNR + Case Outstanding = 11,612 + 6,230 = 17,842