16. (2.75 points)

An insurance company writes general liability insurance and purchases excess-of-loss reinsurance. On January 1, 2013, the insurance company implemented a new reserving process which resulted in a large increase in the average case outstanding for claims occurring in 2013.

The following information is available as of December 31, 2013:

		Reported Claim Counts	
Accident Year	Revenue ($000)	Ground-Up	Excess of Reinsurance Attachment Point
2011	3,400	1,750	220
2012	3,500	1,700	140
2013	3,600	1,500	90

	Reported Claim Count Development Factor to Ultimate (prior to operational change)	
Age (months)	Ground-Up	Excess of Reinsurance Attachment Point
36-Ult	1.000	1.500
24-Ult	1.040	2.500
12-Ult	1.200	6.000

- Annual revenue trend: 3%.
- Annual total frequency trend: 2%.
- Annual excess frequency trend: 5%.

Calculate the insurer's ultimate claim counts that do not exceed the attachment point for accident year 2013.

CONTINUED ON NEXT PAGE

EXAM 5 SPRING 2014 SAMPLE ANSWERS AND EXAMINER'S REPORT

QUESTION: 16

TOTAL POINT VALUE: 2.75 points

LEARNING OBJECTIVE(S): B3, B4

SAMPLE/ACCEPTED ANSWERS:

Sample 1:

It's safe to use the ground-up claim counts and ldf in 2013 to calculate the ultimate 2013 ground up claims, since CDF-ult was developed prior to change.

Ult Ground-up counts: 1500 x 1.2 = 1800

For excess level, the rpt claims count is distorted for 2013 due to case strengthening. I will use trended 2011 and 2012 experience.

	Revenue	Trend	Clm Cts	LDF	Freq Trend	Proj Freq = (3) x (4) / [(1) x (2)] x (5)
	(1)	(2)	(3)	(4)	(5)	
2011	3400	1.03^2	220	1.5	1.05^2	0.101
2012	3500	1.03	140	2.5	1.05	0.102

Average Selected: 0.1015

Excess claim counts = 3600 x 0.1015 = 365

The claim counts not exceeding attachment point is 1800 – 365 = 1435

Sample 2:

Ground-Up					Excess				
1750	x 1.0	x 1.02^2	=	1821	220	x 1.5	x 1.05^2	=	364
1700	x 1.04	x 1.02	=	1803	140	x 2.5	x 1.05	=	367.5
1500	x 1.20	x 1	=	1800	90	x 6.0	x 1	=	540

364 / 1821 = .2

367.5 / 1803 = .2038

Avg .2017 (exclude 2013)

1800 Ult 2013 ground-up x .2019 = 363.4 excess

EXAM 5 SPRING 2014 SAMPLE ANSWERS AND EXAMINER'S REPORT

1436.6 below attachment point

EXAMINER'S REPORT:

This question was somewhat challenging as it asked for candidates to consider the impact of a change in reserving process and how it impacts claim count development differently for ground-up vs. excess claims. Candidates needed to recognize that using a straightforward development method would not be appropriate for counts above the attachment point and that instead they needed to use the second frequency development approach. In order to receive full credit, candidates needed to use the two older accident years (2011 and 2012) to project the excess claims for 2013 as the reported excess claims were overstated due to the reserving change.

Candidates performed as expected on this question. The majority of the candidates recognized the need to use the second frequency development approach. Roughly half of the candidates that attempted the question properly recognized the need to use the two older years to project 2013 excess claim counts.

The most common mistake the candidates made was using all three years to project the 2013 excess claim counts. These candidates generally performed the second frequency development method fairly accurately but failed to consider which years to use given the change in case reserving process given. Another common mistake was that candidates recognized the need to trend the payroll, but never actually used the trended payroll in the second frequency development approach. Some candidates simply took the average claim counts across the years without regard for change in exposure (revenue).

A fair number of candidates derived an alternative approach where rather than determining the excess and ground-up frequencies (which requires trended payroll), they instead determined the ratio of excess to ground-up claim counts for 2011 and 2012 and then applied this ratio to the 2013 ground-up claim counts to derive the 2013 excess claim counts. Full credit was given for this approach when done accurately.

There appeared to be some confusion around the definition of frequency trend given in the question. The majority of candidates viewed frequency trend as defined in the Friedland text where the trend in exposure is not included, however a fair number of candidates assumed frequency trend included the underlying trend in payroll as is often the case in every day actuarial work. Credit was given for both approaches.