14. (1.75 points)

Given the following data evaluated as of December 31, 2015:

Company Data				
Accident Year	Cumulative Paid Claims ($000) as of (months)			
	12	24	36	48
2012	850	950	1,950	2,450
2013	700	2,200	3,300	
2014	900	1,600		
2015	1,000			

Industry Data			
Accident Year	Paid Claims Age-to-Age Factors		
	12-24	24-36	36-48
2012	1.97	1.24	1.10
2013	2.03	1.27	
2014	2.03		

- There is no development after 48 months.

a. (0.75 point)

Calculate the company's accident year 2015 ultimate claims using the paid claim development technique and the company's historical paid claim activity.

b. (0.5 point)

Calculate the company's accident year 2015 ultimate claims using the paid claim development technique and the industry claim development factors.

c. (0.5 point)

Recommend and briefly justify an estimate of the company's accident year 2015 ultimate claims.

QUESTION 14	
TOTAL POINT VALUE: 1.75	**LEARNING OBJECTIVE(S): B3**
SAMPLE ANSWERS	
Part a: 0.75 point	

Sample 1

AY	12 - 24	24 - 36	36 - 48
2012	1.118	2.053	1.256
2013	3.143	1.5	
2014	1.778		

Take all year weighted average for stability

	1.939	1.667	1.256

AY2015 Ultimate Claims = 1000*1.939*1.667*1.256 = 4059.79

Sample 2

AY	12 - 24	24 - 36	36 - 48
2012	950/850=1.1176	2.0526	1.2564
2013	3.1429	1.5	
2014	1.7778		

There doesn't seem to be a pattern, and the losses are pretty volatile
So I will select a straight average.

Selection:	2.0128	1.7763	1.2564
CDF:	4.4921	2.2317	1.2564

1000000 * 4.4921 = 4,492,053

Sample 3

AY	12 - 24	24 - 36	36 - 48
2012	1.118	2.053	1.256
2013	3.143	1.5	
2014	1.778		

From LDFs, we can see company may suffer large losses in 2013 which distort payment pattern.
I decide to use the latest year as selected LDFs to avoid the higher leveraged CDF.

Selection:	1.778	1.5	1.256	1
CDF:	3.35	1.884	1.256	1

AY2015 company ultimate claims = 1000 * 3.35 = 3,350

Sample 4

First need to calculate ATA factors for company data

AY	12 - 24	24 - 36	36 - 48
2012	1.1176 = 950/850	2.0526 = 1950/950	1.2564 = 2450/1950
2013	3.1429	1.5	
2014	1.7778		

These ATA factors are pretty inconsistent

12-24 --> exclude AY2013 and take average of other two Ays because AY2013 seems too high --> 1.4477

24-36 --> average both years because hard to tell if one is irrelevant -->1.7763

36-48 --> 1.2564

So, 2015 Ultimate paid claim = (1M) (1.2564) (1.7763) (1.4477) = 3,230,977.61

Sample 5

Company paid link ratios

AY	12 - 24	24 - 36	36 - 48
2012	1.118	2.053	1.256
2013	3.143	1.5	
2014	1.778		

I would ignore 2012 12-24 ATA factor, because it looks like an outlier.

There seems to be change in the settlement rate in 2014

Selecting averages of other factors

	12 - 24	24 - 36	36 - 48	
Selection:	2.461	1.7765	1.256	
CDF:	5.491	2.231	1.256	1

2015 AY Ultimate Claims = 5.491 * 1000000 = 5,491,189.924

Sample 6

AY	12 - 24	24 - 36	36 - 48
2012	1.11	2.05	1.26
2013	3.14	1.5	
2014	1.77		
Selection:	1.44	2.05	1.26

Selected all-year average excluding AY2013, since it seems like an anormalous year.

Wanted as many years as possible for stabiity though. Assume high 2.05 factor is normal at 24-36

2015 AY Ultimate Claims = 1000 (1.44) (2.05) (1.26) = 3720

Sample 7

AY	12 - 24	24 - 36	36 - 48
2012	1.1176	2.0526	1.2564
2013	3.1429	1.5	
2014	1.7778		
Selection:	1.4477	1.5	1.2564

Seems to be a jump in paid claims in CY2014. I will exclude the 3.1429 and 2.0526 from averages

2015 AY Ultimate Claims = 1000000 (1.4477) (1.5) (1.2564) = 2,728,335

Part b: 0.5 point

Sample 1

Select all year avg of industry ATA as each period is pretty
stable and to include as much data as possible.

12 - 24	24 - 36	36 - 48
2.01	1.255	1.1

AY2015 Ultimate Claims = 1000 * 2.01 * 1.255 * 1.1 = 2774.81

Sample 2

For 12-24, I use two year average as it seems to have increased and stablized at 2.03
I used simple average for 24-36 --> 1.255

AY2015 Ultimate Claims = 1000 * 2.03 * 1.255 * 1.1 = 2802.42

Sample 3

Slight increase in ATA factors from 2012 to 2013 that continuing to 2014 in 12-24 factor.
I will thus select the latest diagonal assuming a major legal change in the industry.

Ultimate AY2015 Claims = 1000*2.03*1.27*1.1*1 = 2835.91

Part c: 0.5 point

- I would recommend using 2775 based on industry data. The company data is too volatile to be given any credibility. The large fluctuations in LDFs could be due to large losses and thus don't give good indications of what is to come.
- I would use industry CDFs estimate of 2774.81 because the company ATAs are very volatile and at early maturity (@12 month) you are subject to highly leveraged CDF.
- Since the ATA factors for company data are really volatile and seem biased by large losses, I would recommend using the estimate in part (b) only based on the payment pattern of the industry, which is more stable.
- Recommend average of these two estimates (3941.3) because takes the company development patterns into consideration, but supplements with industry data to help smooth out potential noise in company development.
- Company ATA factors seem volatile. So industry development factors may be more appropriate. However, company has high volume of claims, so I recommend using company's factors. Industry data combines experience of companies with different mix

of business, UW strategies, and business strategies. Company own experience reflects solely company's tactics. Recommend: 3,230,895 for AY2015 ultimate claims.
EXAMINER'S REPORT
Candidates were expected to apply the loss development method to the same dataset using both company-specific and industry development patterns. Using the results of this analysis, candidates were expected to recommend an ultimate claim estimate, providing support for their recommendation. This question was straightforward, and candidates performed very well.
Part a
Candidates were expected to calculate and select age-to-age LDFs and use them to determine ultimate development factors to derive an estimate of ultimate claims for AY 2015.
Part b
Candidates were expected to evaluate age-to-age LDFs and use them to determine ultimate development factors to derive an estimate of ultimate claims for AY 2015.
Part c
Candidates were expected to evaluate estimates of AY 2015 ultimate claims, make a recommended estimate of ultimate claims, and justify their recommendation. Candidates were expected to make an explicit recommendation of AY 2015 ultimate claims, and provide reasonable support for the selection. Common mistakes included: - Not providing a specific estimate of AY 2015 ultimate claims, but rather naming a vague approach or process that could be taken to estimate ultimate claims   - Failing to justify the selected estimate   - Providing a justification which did not articulate proper support for the recommendation