

Reading: Friedland 14 (S/S)
Model: 2016.Fall #24(b)
Problem Type: Ratio method (multiplicative) for S/S

(Fr14.SS) 01a-Question

Problem Use the **multiplicative** ratio method to estimate the **ultimate** S/S for AY **2014**

cumulative paid claims:

AY	12	24	36	48
2011	200	560	570	570
2012	150	250	400	
2013	150	350		
2014	50			

cumulative paid SS:

AY	12	24	36	48
2011	20	90	100	100
2012	16	40	70	
2013	15	56		
2014	5			

selected ultimate claims by AY (using paid claim development)

AY	ult clms	
2011	570	<== paid claims development method
2012	400	<== paid claims development method
2013	458	<== paid claims development method
2014	150	<== given in the statement of the exam problem

When selecting development factors, you may select a SIMPLE AVERAGE in this problem.

* There is no development beyond 48 months.

Step 1: Ratio of cumulative paid S/S to cumulative paid claims:

AY	12	24	36	48
2011	10.00%	16.07%	17.54%	17.54%
2012	10.67%	16.00%	17.50%	
2013	10.00%	16.00%		
2014	10.00%			

Step 2: Development triangle (multiplicative):

AY	12-24	24-36	36-48	48-		
2011	1.6070	1.0915	1.0000		<===	MULTIPLICATIVE development
2012	1.4995	1.0938				
2013	1.6000					
2014						
selected	1.5688	1.0927	1.0000	1.0000	<===	tail = 1.0
cum	1.7142	1.0927	1.0000	1.0000	<===	selected x (previous cum)
Ult Ratio	17.14%	17.48%	17.50%	17.54%	<===	cum x (latest diagonal from Step 1)

AY	2014	2013	2012	2011		
ult clms	150	458	400	570	<===	given information
pd S/S	5	56	70	100		(repeated here for convenience)

Step 3: Ultimate S/S = (Ultimate Ratio) x (Ultimate Claims)
 Unpaid S/S = (Ultimate S/S) - (Paid S/S)

AY	Ult S/S	UnPd S/S
2011	100.0	(0.0)
2012	70.0	-
2013	80.1	24.1
2014	25.7	20.7
	275.7	44.7

Step 4: ultimate S/S for AY 2014 = 25.7 <=== final answer

For COMPARISON, the S/S ultimate and unpaid values using standard paid S/S development are:

Development method:

% Difference: [(ratio method) - (development method)] / (ratio method)

AY	Ult S/S	UnPd S/S
2011	100.0	-
2012	70.0	-
2013	80.1	24.1
2014	25.6	20.6
	275.7	44.7

Ult S/S	UnPd S/S
0%	-
0%	-
0%	0%
0%	1%
0%	0%