Reading: Friedland 14 (Reinsurance) (Fr14.Stop-Loss) 03a-Question
Model: 2017.Fall #25
Problem Type: Apply reinsurance treaties and calculate net unpaid claims

Problem Calculate the net unpaid claims for all accident years using reported claims development.

cumulative gross reported claims:
(no reported claim development beyond 48 months)

AY	12	24	36	48
2013	2,757	5,570	6,880	7,047
2014	2,345	4,104	5,121	
2015	2,639	4,677		
2016	2,802			

cumulative ceded reported claims:
(under excess-of-loss treaty)

AY	12	24	36	48
2013	0	745	1,332	1,332
2014	0	0	402	
2015	154	328		
2016	0			

cumulative net paid claims:
(net of excess-of-loss treaty)

AY	pd clm
2013	5,102
2014	3,834
2015	2,840
2016	1,385

stop-loss limits
(applies AFTER excess-of-loss treaty)

AY	limit
2013	5,000
2014	5,000
2015	5,000
2016	none

There is no further loss development past 48 months

Step 1: Calculate the net reported claims triangle as (gross reported) - (ceded reported)

AY	12	24	36	48
2013	2,757	4,825	5,548	5,715
2014	2,345	4,104	4,719	
2015	2,485	4,349		
2016	2,802			

Step 2: Calculate net ultimate claims using reported development on the net triangle above (net of excess-of-loss)

AY	12-24	24-36	36-48	48-		
2013	1.7501	1.1498	1.0301		<===	MULTIPLICATIVE development
2014	1.7501	1.1499				
2015	1.7501					
2016						
selected	1.7501	1.1499	1.0301	1.0000	<===	tail = 1.0
cum	2.0730	1.1845	1.0301	1.0000	<===	selected x (previous cum)
Ult Clms net of EoL	5,809	5,151	4,861	5,715	<===	cum x (latest diagonal from Step 1)

Step 3: Put the results from Step 2 into a table and apply the given stop-loss limits

AY	Ult Clms net of EoL	stop-loss limit	Ult Clms net of ALL	net paid	net unpaid		
2013	5,715	5,000	5,000	5,102	0	<===	final answer
2014	4,861	5,000	4,861	3,834	1,027	<===	final answer
2015	5,151	5,000	5,000	2,840	2,160	<===	final answer
2016	5,809	none	5,809	1,385	4,424	<===	final answer
TOTAL					7,611		