Reading: Freihaut.Reins
Model: none
Problem Type: 10-10 rule for assessing risk transfer

Given

type of treaty:	excess-of-loss	
primary retention:	8.0	million
excess coverage:	7.0	million beyond retention
discount rate:	4.5%	

reinsurance premium	5.2	million	* premiums are paid at start of year
losses paid in full after:	3	years	** not a predetermined payment schedule*

CDF (Cumulative Probability Distribution) for primary insurer losses:

prob.	gross loss
0.90	17.0
0.95	24.0
0.99	67.0

Find Use the 10-10 rule for risk transfer to assess whether risk transfer has occurred.

10-10 rule:

Calculate the reinsurer's NPV(loss) at the 90% percentile since this corresponds to a 10% probability of loss FOR THE REINSURER

Risk transfer **has** occurred if:

NPV(loss) at 90th percentile > 110% x (reinsurance premium)

NPV(loss) @ 90th	=	PV(	gross loss	-	retention	)
	=	PV(	15.0	-	8.0	)
	=	PV(	7.0	)		
	=	6.134				

110% x premium = 5.72

Conclusion: risk transfer occurred

Side note: Discounting calculation

PV(7.0)	=	7.0	/	1.045^3
	=	6.134		

TIP: *Don't forget to check whether the (gross loss) is larger than (primary retention) + (excess coverage)*

Reading: Freihaut.Reins
Model: none
Problem Type: 10-10 rule for assessing risk transfer

Given

type of treaty:	excess-of-loss	
primary retention:	10.0	million
excess coverage:	5.0	million beyond retention
discount rate:	5.5%	

reinsurance premium	4.8	million	* premiums are paid at start of year
losses paid in full after:	3	years	** not a predetermined payment schedule*

CDF (Cumulative Probability Distribution) for primary insurer losses:

prob.	gross loss
0.90	17.0
0.95	24.0
0.99	68.0

Find Use the 10-10 rule for risk transfer to assess whether risk transfer has occurred.

10-10 rule:

Calculate the reinsurer's NPV(loss) at the 90% percentile since this corresponds to a 10% probability of loss FOR THE REINSURER

Risk transfer **has** occurred if:

NPV(loss) at 90th percentile > 110% x (reinsurance premium)

NPV(loss) @ 90th	=	PV(	gross loss	-	retention	)
	=	PV(	15.0	-	10.0	)
	=	PV(	5.0	)		
	=	4.258				

110% x premium = 5.28

Conclusion: no risk transfer

Side note: Discounting calculation

PV(5.0)	=	5.0	/	1.055^3
	=	4.258		

TIP: *Don't forget to check whether the (gross loss) is larger than (primary retention) + (excess coverage)*