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:	10.0	million beyond retention
discount rate:	4.0%	

reinsurance premium	2.8	million	* premiums are paid at start of year
losses paid in full after:	4	years	* not a predetermined payment schedule

CDF (Cumulative Probability Distribution) for primary insurer losses:

prob.	gross loss
0.90	17.0
0.95	23.0
0.99	69.0

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(	17.0	-	8.0)
	=	PV(	9.0	)	
	=	7.693			

110% x premium	=	3.08

Conclusion: | risk transfer occurred

Side note: Discounting calculation

PV(9.0)	=	9.0	/	1.04^4
	=	7.693		

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

gross loss @ 90th percentile:	17.0
retention + excess:	18.0

gross loss @90th	is less than/equal	retention + excess	==>	no capping required

Reading:	Freihaut.Reins		(10-10 rule)	2a-Question
Model:	none			
Problem Type:	10-10 rule for assessing risk transfer			

Given

type of treaty: excess-of-loss
primary retention: 9.0 million
excess coverage: 7.0 million beyond retention
discount rate: 6.0%

reinsurance premium 5.5 million * premiums are paid at start of year
losses paid in full after: 4 years * not a predetermined payment schedule

CDF (Cumulative Probability Distribution) for primary insurer losses:

prob.	gross loss
0.90	17.0
0.95	25.0
0.99	67.0

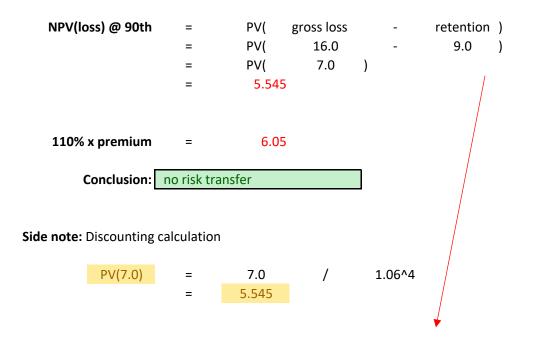**Find** Use the 10-10 rule for risk transfer to assess whether risk transfer has occurred.

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(	16.0	-	9.0	)
	=	PV(	7.0	)		
	=	5.545				

110% x premium   =   6.05

Conclusion: no risk transfer

Side note: Discounting calculation

PV(7.0)	=	7.0	/	1.06^4
	=	5.545		

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

gross loss @ 90th percentile: 17.0
retention + excess: 16.0

gross loss @90th	is greater than	retention + excess		==>	must cap gross loss