31. (1.5 points)

An insurer enters into a reinsurance contract to cover its homeowners business with the following terms:

- Estimated subject premium: $20,000,000
- Reinsurance premium: $10,000,000
- Ceding commission: 30%
- Loss ratio cap (maximum loss ratio reinsurer will incur): 100%
- Maintenance fee to avoid automatic commutation in 4 years: $75,000

- Reinsurer's expenses as % of premium:
  - Brokerage: 10%
  - Underwriting: 10%
  - Tax: 2%

a. (1 point)

Identify two terms in the contract above that would cause most concern from a risk transfer perspective and briefly explain the cause for concern.

b. (0.5 point)

In evaluating risk transfer, discuss the type of interest rate to use when discounting cash flows.

END OF EXAMINATION

31) Sample Answer

Part A)

The question first asked to “identify two terms in the contract above that would cause MOST concern from a risk transfer perspective.” Many candidates offered answers that could cause concern from a risk transfer perspective, but the contract terms causing most concern were:

- the loss ratio cap and
- the presence of an automatic commutation clause.

Examiner’s Report

Some common wrongly identified concerns were:

- subject premium being too high/low
- reinsurance expenses being too high/low
- ceding commissions being too high/low

Some candidates identified the “maintenance fee” as one of the concerning terms. The maintenance fee is not the term that one should be most concerned about. The concerning part is the automatic commutation that will result if the maintenance fee is not paid. However, because the maintenance fee is connected to the automatic commutation provision, credit was given for identifying the concerning contract term.

The question then asked to “briefly explain the cause for concern.” The causes of concern were as follows:

- Loss Ratio Cap: limits the reinsurer’s underwriting risk and therefore limits risk transfer. Probability distributions could exist that, along with a LR cap of 100%, could prevent the reinsurer from assuming significant risk.
- Automatic Commutation Clause: limits the underwriting risk OR limits the timing risk and therefore limits risk transfer. The underwriting risk is limited as, if commuted, adverse development in the tail would no longer be the reinsurer’s responsibility. If there is insufficient underwriting risk in the first 4 years, the reinsurer could be prevented from assuming significant risk. The timing risk is limited as, if commuted, the possibility of payments after 4 years is eliminated. If there isn’t sufficient variability for loss payments in the first 4 years, the reinsurer could be prevented from assuming significant risk.

Examiner's Report

Some common incorrectly explained causes for concerns were:

- The reinsurer is guaranteed a profit. This is wrong because the maximum loss ratio of 100% would result in an underwriting loss.
- There is no risk transfer. This is wrong because the question does not give enough information to prove if there is or isn't sufficient risk transfer.
- Must reflect the maintenance fee in the calculation of risk transfer. While the maintenance fee does need to be reflected in the calculation of risk transfer, this is a relatively small concern.

Part B)

The question asked the candidate to "discuss the type of interest rate used when discounting cash flows". Credit was given for mentioning 2 discussion points from the following:

- Risk free rate
- Constant across all scenarios
- Constant between premiums and losses (primary/reinsurer)
- Constant over all time periods
- Portfolio rate (despite indicating this is a bad choice, the Freihaut&Vendetti paper did agree this could be used and is used by many insurers)
- Should not reflect investment risk
- Should not reflect a particular company's investment appetite
- Duration matched
- Appropriate/reasonable
- Accurately identifying the relationship between various interest rates and whether they overdetect/underdetect risk transfer

Examiner's Report

Common incorrect discussion points concerning the interest rate:

- Consistent with IRS discounting
- Use the company's cost of capital