20. (3.75 points)

a. (2 points)

Fully discuss the potential effect of a transfer of insurance business with an unregistered reinsurer to a registered reinsurer on the components of the MCT formulae.

b. (1.25 points)

Fully describe how the capital required for off-balance sheet exposures is calculated in the MCT formulae.

c. (0.5 point)

Explain the purpose of the diversification credit in the MCT calculation.

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| QUESTION 20 | |
|---|---|
| TOTAL POINT VALUE: 3.75 | LEARNING OBJECTIVE: C1,C2 |
| SAMPLE ANSWERS | |

**Part a:** 2.0 points

- Sample answer #1
  - Available capital:
    - The deduction for recoverable from unregistered reinsurers will be removed => increase in available capital
  - Required capital:
    - The margin for recoverables from unregistered reinsurers will be removed=> decrease in required capital
    - There will be an extra charge in the asset risk margin category for reinsurance recoverables from reg. reinsurer => increase in required capital (less than above decrease)
    - If collateral was held, there will be less credit risk since no collateral will be needed => decrease in required capital
    - Under the operational risk category there will be less risk associated with ceded written premiums => reduction in required capital
    - => Overall reduction in required capital
  - =>MCT ratio should increase
- Sample answer #2
  - First on available capital there is an effect if the collateral (non-owned deposit+LOC+payable) is smaller than the recoverable from reinsurer (max{A+B+C-D-E-F, 0})
  - In the capital required there is a 15% required on A+B (O/S loss+recoverable) less excess of max{ D+E+F-A-B-C, 0} which could be 0 or higher
  - And there is a credit risk on collateral (LOC and non-owned deposit) which is reduced by excess collateral
  - Thus the potential effect is more capital available and less capital required for insurance risk and credit risk,
    - Also, operational risk as a consequence and diversification credit smaller
- Sample answer #3
  - The amount of unregistered reinsurance not covered by acceptable collateral is deducted from capital available. Changing to registered reinsurer would not require this deduction thus capital available will be higher
  - Insurance risk margin includes a provision for unregistered reinsurance. This provision will not be required, thus insurance risk margin will decrease
  - Credit risk margin includes a provision for counterparty credit risk on collateral held for unregistered reinsurance. This will no longer be required. Thus credit risk margin will decrease
  - Operational risk will likely decrease due to a decrease in both insurance risk and credit risk
  - Overall, capital required decreases and capital available increases, thus MCT increases.

**Part b:** 1.25 points

- Sample answer #1
  - First calculate equivalent amount (ex: gross replacement cost of structure settlement)
  - Subtract guarantees and collateral
  - Multiply by credit conversion factor to reflect maturity and nature
  - Multiply by capital factor to reflect credit worthiness of counter party
  - … add the total to required capital
- Sample answer #2
  - First a credit equivalent amount is calculated for each Off-B/S asset category. For letter of credit and non-owned deposits, this is equal to the face amount. For structured settlements, this is equal to the replacement cost. For derivatives, it is equivalent to the positive replacement cost + an add-on factor.
  - The credit equivalent amount is then reduced by collateral since a separate calculation is performed for collateral
  - The credit equivalent amount is then multiplied by two factors: the credit conversion factor and the counterparty credit risk factor. The counterparty credit risk factor depends on the counterparty rating. The credit conversion factor depends on the duration of the exposure.
- Sample answer #3
  - Req'd capital = (credit equivalent @ reporting date – any collateral held) * credit conversion factor * counterparty credit risk
  - Credit equivalent amt = replacement cost in cases of structure settlements
  - Credit conversion factor encaptures nature & maturity of instrument
  - Counterparty credit risk accounts for probability of default of counterparty

**Part c:** 0.5 point

- Sample answer #1
  - To reflect that it is unlikely to suffer a loss from different groups of risk factor simultaneously at a high confidence level since they are not perfectly correlated.
- Sample answer #2
  - Diversification credit is a component that recognizes that there is very low probability that all risk categories will suffer a maximum loss simultaneously. Therefore, capital required is reduced.
- Sample answer #3
  - Reflect that not all risks all fully correlated and some will not happen at same time. Thus, reduce capital required.

**EXAMINER'S REPORT**

Most candidates did not receive full credit on this question.

Most candidates received partial credit in a) for discussing some effect of transferring insurance business from an unregistered reinsurer to a registered reinsurer. Part b) was the most challenging part, as very few provided an adequate answer showing that this part was probably not covered in their studies. As for part c), candidates generally scored very well.

**Part a**

Candidates were expected to give the potential effect on both the capital available and the capital required and providing details on which components of the capital required (insurance risk, credit risk, operational risk, diversification risk, etc.) were impacted and how (i.e. increase or decrease).

Most candidates provided some effect of transferring insurance business to a registered reinsurer and were awarded partial credit.

Common error:

- Describing the opposite situation (i.e. transferring business from a registered to an unregistered reinsurer)

**Part b**

Candidates were expected to know the different amount/factors in the calculation and provide a description of these when it was not self-explanatory.

Candidates did not perform very well on this part. Most candidates didn't know the calculation involved for the capital required for off-balance sheet exposures.

Common error:

- No mention of the reduction to the credit equivalent amount by any collaterals held
- No description of the credit conversion factor (i.e. credit conversion factor reflects the nature and maturity of the instrument)

**Part c**

Candidates are expected to know what diversification credit is. Most candidates received full credit on this part.

The diversification credit was well known by most candidates. Some candidates received only partial credit where the explanation only has one point. E.g. only mentioning that there are correlation across risk category, but did not mention the credit is for reducing the total capital.

Common error:

- Explaining that the diversification credit is to account for diversity of the insurer across product, line of business, or territory.