Financial accounting module 23: Reinsurance contracts held

(The attached PDF file has better formatting.)

The final exam does _not_ test reinsurance contracts held by primary insurers. Reinsurance contracts issued by reinsurers are treated like insurance contracts issued by primary insurers. Many items in IFRS 17 depend on the judgment of the insurer, so the same reinsurance contract may have different accounting entries on the books of the ceding company and the reinsurer.

CONTRACTS SUBJECT TO IFRS 17

IFRS 17 applies to reinsurance contracts issued by reinsurers just as to primary insurance contracts issued by primary insurers. The modifications to the general measurement model for reinsurance contracts *held by primary insurers* (discussed in this section) do not apply to reinsurance contracts *issued by reinsurers.*[1]

Insurance contracts held by firms (including insurers), such as group health insurance, commercial liability insurance, and commercial property insurance, are *not* covered by IFRS 17.[2] Reinsurance contracts held by insurers (and issued by reinsurers or other insurers) are covered by IFRS 17 in a similar manner and using the same assumptions as the primary insurance contracts issued by the insurers.[3]

Illustration: Insurer ABC has four contracts:

A. An insurance contract issued covering its own policyholders (IFRS 17 general requirements)
B. A reinsurance contract issued covering Insurer XYZ (IFRS 17 general requirements)
C. A reinsurance contract held that was issued by Insurer DEF (IFRS 17 reinsurance contracts held)
D. An insurance contract held that was issued by Insurer DEF, such as a group health insurance contract covering ABC's employees or a commercial property contract covering ABC's buildings (not covered by IFRS 17)

Contracts A and B are covered by the IFRS 17 general requirements. Contract B is treated the same as a primary insurance contract in ABC's financial statements. Contract C is covered by the IFRS 17 requirements for reinsurance contracts held. Contract D is not covered by IFRS 17.

A reinsurance contract is covered twice by IFRS 17:

! Contract B above is an insurance contract issued for ABC and a reinsurance contract held for XYZ.
! Contract C above is an insurance contract issued for DEF and a reinsurance contract held for ABC.

A reinsurance contract held covers the same contingent events as the underlying insurance contracts issued to policyholders, and it reimburses the insurer for its payments to policyholders, but reinsurance contracts that the insurer holds are reported separately from the underlying insurance contracts that it issues.[4] Insurance contracts issued and reinsurance contracts held can not be in the same group of insurance contracts.

Illustration: An insurer expects to pay one claim for 100 in two years. The discount rate is 6% *per annum*, and the risk adjustment for non-financial risk is 8% of the nominal value of the claim. The insurer buys a 40% proportional reinsurance contract and it expects to receive a payment of 40 from the reinsurer for this claim. The insurer reports separately the underlying insurance contracts issued and the reinsurance contract held, but it uses the same assumptions for both. After the premium is received, the fulfilment cash flows for the underlying insurance contract are

$$100 / 1.06^2 + 100 \times 8\% = 97.00.$$

The fulfilment cash flows for the reinsurance contract held (after the reinsurance premium is paid) are

$$-40\% \times 100 / 1.06^2 + -40\% \times 100 \times 8\% = -38.80.$$

The insurer may *not* include the reinsurance contract held in the same group as the underlying insurance contract issued and report fulfilment cash flows of $60\% \times 100 / 1.06^2 + 60\% \times 100 \times 8\% = 58.20$.[5]

Consistent assumptions

The primary insurer that buys the reinsurance contract and the reinsurer that issues the contract may use different assumptions to value the contract. The estimated claims and the discount rate depend on the perspective of the reporting entity: the primary insurer for the reinsurance contract held and the reinsurer for the reinsurance contract issued.[6] The primary insurer and the reinsurer are not privy to the other's estimates.

An insurer must use consistent assumptions for the reinsurance contracts that it holds and the underlying insurance contracts that it issues for the estimated claim costs, the discount rate, and the risk adjustment for non-financial risk.[7]

Illustration: An insurer issues a group of insurance contracts and buys a 60% proportional reinsurance that covers 60% of the claim costs. If the insurer uses a 6% discount rate for the primary insurance contracts and estimates a present value of future cash outflows of 100, it must use a 6% discount rate for the reinsurance contract held and a present value of future cash inflows (reinsurance recoverables) of $100 \times 60\% = 60$, except for the risk of non-performance for the reinsurance contract held (as discussed below).

The present value of future cash flows differ for the reinsurance contract held and the underlying insurance contracts by the risk of non-performance for the reinsurance contract held, which depends on the credit risk of the reinsurer, the likelihood of coverage disputes, and the collateral provided.[8]

! Credit risk: reinsurers often cover large losses that are hard to diversify and may become insolvent and not pay the reinsurance recoverables.
! Coverage disputes: reinsurers may deny coverage for claims that are not clearly covered by the terms of the reinsurance contract provisions.
! Collateral: reinsurers sometimes provide collateral (either cash deposits or letters of credit from banks) to ensure payment of the reinsurance recoverables.

Illustration: An insurer issues a group of insurance contracts and buys a 60% proportional reinsurance that covers 60% of the claim costs. The risk of non-performance for the reinsurance contract held is 4%. If the insurer estimates a present value of future cash outflows of 100 for the primary insurance contracts, it estimates the present value of future cash inflows from the reinsurance contract held as $100 \times 60\% \times (1 - 4\%) = 57.60$.

Risk adjustment for non-financial risk (reinsurance contracts held)

The risk adjustment for non-financial risk is "the compensation the entity requires for bearing the uncertainty about the amount and timing of the cash flows that arises from non-financial risk."[9] The risk adjustment for non-financial risk for reinsurance contracts held is not determined separately but is "the amount of risk transferred by the holder of the reinsurance contract to the issuer of the contract."[10]

Illustration: The risk adjustment for non-financial risk for a Z% proportional reinsurance contract held is Z% of the risk adjustment for non-financial risk for the underlying insurance contract.

Illustration: An insurer estimates its risk tolerance as 100 *per annum*: that is, it does not require compensation for the uncertainty of the first 100 of potential losses, but it requires increasing compensation for additional units of potential loss above the first 100. The potential annual losses on the underlying insurance contracts are 250, for which it estimates a risk adjustment for non-financial risk of 20, and it buys a 60% proportional reinsurance contract that reduces the potential annual losses on the underlying insurance contracts to 100. The risk adjustment for non-financial risk for the reinsurance contract held is $-60\% \times 20 = -12$. We do not say that the risk adjustment for non-financial risk covers the potential losses excess of 100, or $250 - 100 = 150$, which become zero with the reinsurance contract. Rather, the reinsurer assumes 60% of each unit of potential loss, so it assumes 60% of the risk adjustment for non-financial risk.

For non-proportional reinsurance, the risk transferred to the reinsurer is proportionally greater than the losses transferred. The insurer should determine the compensation that it requires for bearing the claim uncertainty without the reinsurance and with the reinsurance. The difference between the two amounts is the risk adjustment for non-financial risk for the reinsurance contract held.

Illustration: An insurer writes personal property coverage in a hurricane-prone area, with expected claims of 700 for fire and theft and 50 for natural catastrophes. The insurer buys a catastrophe cover that reimburses 80% of the natural catastrophe claims. The insurer estimates a risk adjustment for non-financial risk for the underlying insurance contract of 60, of which 40 is for fire and theft claims and 20 is for natural catastrophe claims. For simplicity, assume the discount rate is zero. (If the insurer uses the premium allocation approach for the underlying insurance contracts and the reinsurance contract held, it may elect not to discount future cash flows, since the time from occurrence of a claim to payment of the claim is not more than one year for personal property.) The fulfilment cash flows are

!   Underlying insurance contracts: $700 + 50 + 40 + 20 = 810$
!   Reinsurance contract held: $80\% \times 50 + 80\% \times 20 = 56$

Non-proportional reinsurance contracts cover upper layers of loss, which have larger risk adjustments for non-financial risk. For the illustration above, if the reinsurance contract covers the part of the natural catastrophe claims above a retention, it might transfer 90% of the risk adjustment for non-financial risk even if it transfers 80% of the expected claims. The fulfilment cash flows for the reinsurance contract held would be $80\% \times 50 + 90\% \times 20 = 58$.

Contractual service margin for reinsurance contracts held

For primary insurance contracts, the contractual service margin is the unearned profit that is recognized as the insurance services are provided. For reinsurance contracts held, the contractual service margin is the net cost: the present value of reinsurance premium minus present value of the claim payments from the reinsurer.[11] Reinsurers price reinsurance contracts to make money, not to lose money, so the primary insurer expects to pay more to the reinsurer (in present value terms) than it receives.

!   For primary insurance contracts, the contractual service margin may not be negative, since losses may not be deferred once they are anticipated.
!   For reinsurance contracts held, the contractual service margin is usually negative.

" A negative contractual service margin for a reinsurance contract held means the primary insurer expects a net loss from buying the reinsurance. The primary insurer does not recognize the loss on the reinsurance contract held until is recognizes the gain on the underlying insurance contracts.
" A positive contractual service margin for a reinsurance contract held means the primary insurer expects a net profit from buying the reinsurance. It recognizes this gain as it recognizes the unearned profit on the underlying insurance contracts.

Illustration: An insurer writes primary insurance contracts for a premium of 100, with a present value of future cash outflows (claims) of 84, no acquisition cash flows, and a risk adjustment for non-financial risk of 10, and it buys a proportional reinsurance contract that reimburses half the claims. The contractual service margin for the primary insurance contract is $100 - 84 - 10 = 6$.

! The contractual service margin for the reinsurance contract held depend on the reinsurance premium.
   " If the reinsurance premium is 52, the contractual service margin on the reinsurance contract held is $\frac{1}{2} \times (84 + 10) - 52 = -5$.
   " If the reinsurance premium is 50, the contractual service margin on the reinsurance contract held is $\frac{1}{2} \times (84 + 10) - 50 = -3$
   " If the reinsurance premium is 48, the contractual service margin on the reinsurance contract held is $\frac{1}{2} \times (84 + 10) - 48 = -1$
   " If the reinsurance premium is 46, the contractual service margin on the reinsurance contract held is $\frac{1}{2} \times (84 + 10) - 46 = 1$

The contractual service margin on the reinsurance contract held offsets part of the unearned profit on the underlying insurance contracts, though the accounting entries are reported separately for primary insurance contracts and reinsurance contracts held. For this illustration, the unearned profit on the underlying insurance contracts is 6. The gain or loss from the reinsurance contract held depends on the reinsurance premium, which depends on the ceding commission: reinsurance premium = premium on underlying insurance contracts × reinsurance percentage – ceding commission.

! If the reinsurance premium is 52, the gain on the reinsurance contract held is -5 (a loss of 5).
! If the reinsurance premium is 48, the gain on the reinsurance contract held is -1 (a loss of 1).
! If the reinsurance premium is 46, the gain on the reinsurance contract held is +1 (a profit of 1).

Reinsurers rarely issue contracts on which they expect to lose money at initial recognition. Positive contractual service margins on reinsurance contracts held usually reflect increases in the fulfilment cash flows on the underlying insurance contracts at subsequent measurement or different expectations by the primary insurer and the reinsurer about the future cash flows.

Illustration: An insurer sells primary insurance contracts with expected unearned profits of 100, and it buys a 60% proportional reinsurance contract with an expected net loss of 60. If the insurer revises the estimated claims on the underlying insurance contracts to give an expected loss of 150, the proportional reinsurance contract has an expected gain of 60% × 150 = 90.

We explain below the contractual service margin for reinsurance contracts held when the underlying insurance contracts become onerous.

Retroactive reinsurance

Prospective reinsurance covers future contingent events; retroactive reinsurance covers events that have already occurred. An insurer that incurs a large claim with an uncertain payment may buy reinsurance to cover the past claim. The expected net cost of the reinsurance contract held for events that have already occurred is recognized immediately in profit or loss under IFRS 17, not reported as a contractual service margin.[12]

Illustration: An insurer writes a products liability policy and incurs a claim that may be paid for a present value between zero and 100, with an expected value of 40. The insurer buys a reinsurance contract covering 100% of the claim for a premium of 45. The insurer reports a reinsurance contract held with a contractual service margin of zero and a loss of 5 in the statement of profit or loss.[13]

Upper bound on the contractual service margin

The contractual service margin on the underlying insurance contracts is bounded from below at zero:

! At initial recognition, if the fulfilment cash flows are positive (the contracts are onerous), the contractual service margin is zero and the fulfilment cash flows are recognized immediately in profit or loss.
! At subsequent measurement, if an increase in the fulfilment cash flows from re-estimates of future claims exceeds the contractual service margin (the contracts become onerous), the contractual service margin is reduced to zero. The rest of the increase in the fulfilment cash flows becomes the loss component of the liability for remaining coverage and is recognized immediately in profit or loss.
! At subsequent measurement, a decrease in the fulfilment cash flows from re-estimates of future claims on onerous contracts reduces the loss component of the liability for remaining coverage (until it becomes zero) and is recognized immediately (as profit) in profit or loss. The decrease in the fulfilment cash flows minus the loss component of the liability for remaining coverage is offset by an increase in the contractual service margin.

The contractual service margin on the reinsurance contract held is bounded from above at the same expected claims at which the contractual service margin on the underlying insurance contracts becomes zero. The contractual service margin on the reinsurance contract held at this bound is generally **not** zero.[14]

If the underlying insurance contracts have acquisition cash flows, which are not reimbursed by the proportional reinsurance contract held, but the reinsurance contract has no ceding commission, the upper bound on the contractual service margin for the reinsurance contract held is negative.

Illustration: The underlying insurance contracts have a premium of 100 and acquisition cash flows of 20, and the insurer buys a proportional reinsurance contract with a reinsurance percentage of P. If the present value of future cash flows plus the risk adjustment for non-financial risk (which are covered by the reinsurance contract held) are 80 or more, causing the contracts to be onerous and the contractual service margin to be zero, the fulfilment cash flows on the reinsurance contract held are $P \times (100 - 80)$ or less, and the contractual service margin is $-P \times (100 - 80)$, or $-P \times$ the acquisition cash flows.

If the underlying insurance contracts have no acquisition cash flows, but the reinsurance contract has a ceding commission, the upper bound on the contractual service margin for the reinsurance contract held is positive.

Illustration: The underlying insurance contracts have a premium of 100 and acquisition cash flows of 0. The insurer buys a proportional reinsurance contract with a reinsurance percentage of P and a ceding commission percentage of C. If the present value of future cash flows plus the risk adjustment for non-financial risk are 100 or more, causing the contracts to be onerous and the contractual service margin to be zero, the fulfilment cash flows on the reinsurance contract held are $P \times (1 - C) \times 100 - 80$ or less, and the contractual service margin is $-P \times (1 - C) \times 100 - 80$, or $P \times$ the ceding commission percentage.

For the illustration above, with a reinsurance premium of 52 (ceding commission is less than the acquisition cash flows times the reinsurance percentage):

! if the claims are re-estimated at 88:
  " the contractual service margin on the underlying insurance contracts is $100 - 88 - 10 = 2$
  " the contractual service margin on the reinsurance contract held is $½ \times (88 + 10) - 52 = (3)$
! if the claims are re-estimated at 90:
  " the contractual service margin on the underlying insurance contracts is $100 - 90 - 10 = 0$

" the contractual service margin on the reinsurance contract held is ½ × (90 + 10) – 52 = (2)
! if the claims are re-estimated at any value above 90:
    " the contractual service margin on the underlying insurance contracts is zero.
   " the contractual service margin on the reinsurance contract held is -2.

With a reinsurance premium of 48 (the ceding commission is more than the acquisition cash flows times the reinsurance percentage):

! if the claims are re-estimated at 88:
    " the contractual service margin on the underlying insurance contracts is 100 – 88 – 10 = 2
    " the contractual service margin on the reinsurance contract held is ½ × (88 + 10) – 48 = 1
! if the claims are re-estimated at 90:
    " the contractual service margin on the underlying insurance contracts is 100 – 90 – 10 = 0
    " the contractual service margin on the reinsurance contract held is ½ × (90 + 10) – 48 = 2
! if the claims are re-estimated at any value above 90:
    " the contractual service margin on the underlying insurance contracts is zero.
    " the contractual service margin on the reinsurance contract held is 2

The accompanying graphic shows the contractual service margin on the horizontal axis and the present value of future cash flows for the underlying insurance contracts on the horizontal axis.

! Line A shows the contractual service margin for the underlying insurance contracts.
! Line B shows the contractual service margin for the reinsurance contract held if the ceding commission is more than the acquisition cash flows times the reinsurance percentage on the underlying contracts.
! Line C shows the contractual service margin for the reinsurance contract held if the ceding commission is less than the acquisition cash flows times the reinsurance percentage on the underlying contracts.

Line A becomes flat when the present value of future cash flows are large enough that the contractual service margin becomes zero (the underlying insurance contracts become onerous). Lines B and C become flat at the same point, but the contractual service margin on B becomes positive (the net gain results from a ceding commission greater than the acquisition costs times the reinsurance percentage) and the contractual service margin on C stays negative (the net loss results from a ceding commission less than the acquisition costs times the reinsurance percentage).
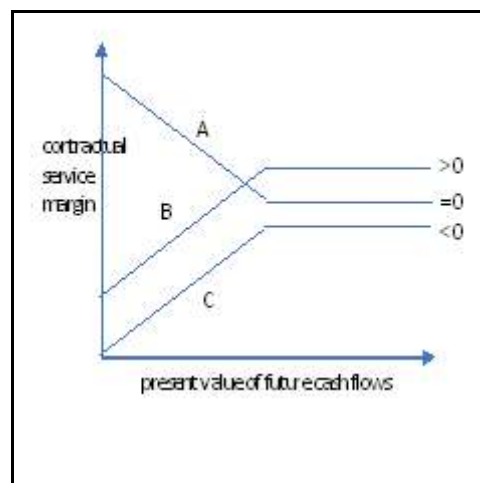
Reinsurance contracts held with net gains at initial recognition

Reinsurers generally expect a positive net present value from the future cash flows and an accounting profit from the reinsurance contracts issued. The primary insurers who buy (hold) the reinsurance contracts expect to pay for the reduction in risk (and other services) provided by the reinsurer, so they expect a net loss from the reinsurance contracts held.

Reinsurance contracts held are not onerous or non-onerous.[15] The analog to onerous primary insurance contracts for reinsurance contracts held is a contract for which the primary insurer expects a gain on initial recognition. The distinction between net gain vs net loss for the ceding insurer is similar to that between onerous vs non-onerous contracts for the reinsurer, except that directly attributable acquisition cash flows affect the reinsurer who issues the reinsurance contract, not the primary insurer who holds the reinsurance contract.

Illustration: An insurer buys a 50% proportional reinsurance contract: the reinsurer receives 50% of the premium on the underlying contracts and pays 50% of the claims. If the reinsurer has no expenses (such as acquisition cash flows) other than claims reimbursed by the reinsurance contract, and if the reinsurer and the primary insurer use the same estimates for claims and for the risk adjustment for non-financial risk, then the they have the same expected return.

!   If the contract is not onerous for the reinsurer, the contract has a net loss for the ceding insurer.
!   If the contract is onerous for the reinsurer, the contract has a net gain for the ceding insurer.

In practice, reinsurers have acquisition costs, but these acquisition costs (per unit of premium) are less than the acquisition costs on the underlying insurance contracts. Reinsurers often reduce the premium (by a ceding commission) to compensate for the lower acquisition costs on the reinsurance contracts than on the insurance contracts. If the acquisition costs are high for the primary insurer and low for the reinsurer, and the reinsurer pays a ceding commission that reimburses much of the primary insurer's acquisition costs, the primary insurer may expect a net gain on the reinsurance contract held.

Risk of non-performance (counter-party credit)

The fair value of a bond reflects the credit risk that the issuer of the bond will not pay its obligations (coupons and maturity value). The fair value of a bond equals the coupons and principle repayment, discounted for the time value of money and times the probability that they will be paid.

The insurer's or reinsurer's own credit risk does not affect the measurement of the insurance or reinsurance contracts *issued*, but the reinsurer's credit risk (the risk of non-performance) affects the measurement of reinsurance contracts *held by the primary insurer*. IFRS 17 considers counter-party credit risk for reinsurance contracts held, not own credit risk for insurance contracts (or reinsurance contracts) issued.

!   The fulfilment cash flows for insurance contracts issued and reinsurance contracts issued consider the probability distribution of the claims and the time value of money but *not* the likelihood that the insurer (or reinsurer) will default and not pay the claims or that it will dispute the claims and not pay them.
!   The fulfilment cash flows for *reinsurance contracts held* consider the probability distribution of the claims and the time value of money and *also* the likelihood that the reinsurer will default and not pay the claims or that it will dispute the claims and not pay them.[16]

The credit risk of the insurer (or the reinsurer) for insurance contracts that it issues is called "own credit risk" and is not relevant to the fulfilment cash flows, which show the amount the insurer is obligated to pay, not the amount that it will actually pay. If IFRS 17 considered own credit risk, financially distressed insurer would show positive equity, regardless how unlikely they were to pay claims, since expected claims would be reduced to offset the probability of non-payment. Investors would not be able to assess the financial strength of insurers.

Illustration: We compare a zero coupon bond with an insurance claim and a reinsurance recoverable.

!   An insurer buys a one year zero-coupon bond that pays 100 at maturity. The risk-free discount rate is 6% *per annum* and the likelihood that the bond issuer will default and not pay is 4%. The carrying value of the bond (its market value at initial recognition) is $(1 + 6\%)^{-1} \times 100 \times (1 - 4\%) = 90.57$

!   An insurer issues an insurance contract that pays 100 in one year. The risk-free discount rate is 6% *per annum* and the likelihood that the insurer will default and not pay is 4%. The present value of future cash outflows is $(1 + 6\%)^{-1} \times 100 = 94.34$

!   An insurer buys a reinsurance contract that pays 100 in one year. The risk-free discount rate is 6% *per annum* and the likelihood that the reinsurer will default and not pay is 4%. The present value of future cash inflows is $(1 + 6\%)^{-1} \times 100 \times (1 - 4\%) = 90.57$

The discount rate for IFRS 17 considers maturity, liquidity, and currency, but not credit risk or market risk. The discount rate for reinsurance contracts held is the same as the discount rate for the underlying insurance contracts. The credit risk (risk of non-performance) for reinsurance contracts held is shown separately in the IFRS 17 reconciliations of the insurance contract liability.[17]

Illustration: An insurer expects to pay one claim for 100 in two years. The discount rate is 6% *per annum*, and the risk adjustment for non-financial risk is 8% of the nominal value of the claim. The insurer buys a 40% proportional reinsurance contract and it expects to receive a payment of 40 from the reinsurer for this claim. The fulfilment cash flows for the reinsurance contract held (after the reinsurance premium is paid) are

$$-40\% \times 100 / 1.06^2 + -40\% \times 100 \times 8\% = -38.80.$$

If the primary insurer expects a 2% probability that the reinsurer will not pay the claim (a counter-party credit risk), the fulfilment cash flows for the reinsurance contract held (after the reinsurance premium is paid) are

$$(1 - 2\%) \times (-40\% \times 100 / 1.06^2 + -40\% \times 100 \times 8\%) = -38.02.$$

Primary insurers may ask a reinsurer to provide collateral (such as a cash deposit or a letter of credit from a bank) to cover the claim payments. Collateral for reinsurance recoverables is often provided by unauthorized reinsurers for statutory accounting in countries where recoverables from unauthorized reinsurers (reinsurers that are not authorized by insurance regulators) are not recognized in statutory financial statements unless the recoverables are collateralized. The collateral reduces the risk of non-performance.

Re-estimates of reinsurance recoverables and of credit risk

If the reinsurance recoverables for future claims are re-estimated, the fulfilment cash flows and the contractual service margin for the reinsurance contract held change in offsetting directions.

Illustration: At initial recognition, the present value of future cash inflows from a reinsurance contract held is 80 and the contractual service margin is -5. If this present value is re-estimated at 90, the contractual service margin changes to +5, assuming the claims have not yet occurred (are still future service) and the underlying insurance contracts are not onerous.

If the credit risk of the reinsurer is re-estimated, the fulfilment cash flows change but the contractual service margin does not change. A change to credit risk relates to current service, not future service.[18]

Illustration: At initial recognition, the present value of future cash flows from a reinsurance contract held (not considering credit risk) is 100 and the chance that the reinsurer will become insolvent and not pay the claims is 20%, so the fulfilment cash flows are $100 \times (1 - 20\%) = 80$. Suppose the contractual service margin is -5. If the chance that the reinsurer will become insolvent is re-estimated at 10%, the fulfilment cash flows change to $100 \times (1 - 10\%) = 90$, but the contractual service margin stays -5.

Illustration: Reinsurance contracts held and contractual service margin

On December 31, 20X0, an insurer writes a group of insurance contracts, receives premium of 100, pays directly attributable acquisition cash flows of 11, and has a present value of future cash flows of 74 and a risk adjustment for non-financial risk of 4. The insurer buys a 50% proportional reinsurance contract with a ceding commission of 10%. The reinsurer has directly attributable acquisition cash flows of 3. We compute:

A. The reinsurance premium paid to the reinsurer, net of the ceding commission.
B. The contractual service margin at initial recognition on the underlying insurance contracts.
C. The contractual service margin at initial recognition on the reinsurance contract held.
D. The contractual service margin at initial recognition on the reinsurance contract issued.

Part A: The reinsurance premium net of the ceding commission is 50% × 100 × (1 − 10%) = 45.

The ceding commission is a reduction of the reinsurance premium, not an offset to acquisition cash flows.

Part B: The fulfilment cash flows at initial recognition for the underlying insurance contracts are −100 + 11 + 74 + 4 = -11, so the contractual service margin at initial recognition is 11.

Part C: The fulfilment cash flows at initial recognition for the reinsurance contract held is 45 − 50% × (74 + 4) = 6, so the contractual service margin at initial recognition is –6.

! The cash outflow of 45 is the premium minus the ceding commission.
! The cash inflow of 50% × (74 + 4) is 50% of (the expected cash outflows plus the risk adjustment for non-financial risk) on the underlying insurance contracts.

The insurer uses the same assumptions for the underlying insurance contracts and the reinsurance contract held for expected claims, discount rates, and risk adjustments for non-financial risk. The reinsurer may have different assumptions for the reinsurance contract that it issues.

The reinsurance contract held has a negative contractual service margin, reflecting a net loss for the ceding insurer at initial recognition: the present value of the reinsurance premium is more than the present value of the expected reinsurance recoverables. This net loss is the reinsurer's expected profit; the primary insurer pays for the reduction in risk (and other services) provided by the reinsurer.

Part D: The fulfilment cash flows at initial recognition for the reinsurance contract issued by the reinsurer is

−45 + 50% × (74 + 4) + 3 = (3), so the contractual service margin at initial recognition is +3.

In the expression above, the cash inflow of 45 is the premium minus the ceding commission; the cash outflow of 3 is the directly attributable acquisition cash flows.

The computation above assumes the reinsurer uses the same assumptions as the primary insurer does for expected claims, discount rates, and risk adjustments for non-financial risk. In practice, the reinsurer and the primary insurer are not privy to the other's accounting entries. The two firms may have different expectations: the primary insurer may expect a 70% loss ratio on the block of business and the reinsurer may expect an 80% loss ratio. IFRS 17 uses the perspective of the entity preparing the financial statements: the primary uses its expectations for the reinsurance contract held and the reinsurer uses its expectations for the reinsurance contract issued.

NON-PROPORTIONAL REINSURANCE CONTRACTS

The IFRS 17 rules for reinsurance contracts held apply to both proportional reinsurance contracts and non-proportional reinsurance contracts. Non-proportional reinsurance contracts include stop-loss reinsurance contracts for group health insurance, excess-of-loss reinsurance contracts for liability coverages and special risk, and catastrophe covers for property insurance. These contracts pay the claims in a layer of loss above a retention and below a policy limit, such as the loss costs in the layer from 50 million to 100 million.

The retention on excess-of-loss reinsurance contracts may apply to individual claims or to aggregate claims; the retention on stop-loss group health reinsurance contracts and on catastrophe covers apply to aggregate claims.

The retention on an excess-of-loss or a stop-loss reinsurance contract is on a per-claim, per-policyholder, per-contract basis, or an aggregate retention for all contracts combined. These four types of retention are

! *Per-claim:* the reinsurer pays the excess losses on individual claims that exceed a retention.

!   *Per-policyholder:* the reinsurer pays the excess losses on each policyholder's claims whose sum exceeds a retention.

!   *Per-contract:* the reinsurer pays the excess losses on each insurance contract's claims whose sum exceeds a retention.

!   *Aggregate:* the reinsurer pays the losses above a retention on the primary insurer's total claims.

The per-claim and per-policyholder excess-of-loss reinsurance contracts are easier to price, since their cost does not depend on the volume of business. The cost of the per-contract excess-of-loss reinsurance contract depends on the number of policyholders in the group and the cost of the aggregate reinsurance contract depends on the number of underlying insurance contracts, so these latter two contracts are harder to price.

Some catastrophe covers apply to a single catastrophe, but the primary insurer can often reinstate the cover by paying a reinstatement premium.

Catastrophe covers are most common for windstorms (hurricanes, monsoons) and earthquakes.

!   Expected windstorm claims depend on the location, the latitude, and the season.

!   The probability of earthquake claims depends on past history: a recent earthquake reduces the chance of a second earthquake and tremors increase the chance of an earthquake.

Stop-loss group health insurance contracts and excess-of-loss reinsurance contracts are generally effective on January 1, so the illustration below refers to interim financial statements on June 30.

For non-proportional reinsurance contracts, the expected claims are not spread evenly through the coverage period. Excess claims (above the aggregate retention) are low at inception and rise over the coverage period.

Illustration: A insurer issues a group health insurance contract on January 1, 20X1, with a one year coverage period. The insurer buys a stop-loss reinsurance contract covering aggregate claims excess of a retention.

The stop-loss contract covers the layer of loss above an aggregate retention of 100, with a policy limit of 120. The premium for the stop-loss contract is 25, and the acquisition cash flows are zero.

The claim distribution for a group health insurance plan may be modeled by a Gamma distribution, a truncated lognormal distribution, or a truncated Pareto distribution. For simplicity, we assume the distribution of claims each half-year is 20 or 80 with 50% chance of each. The simple binary distribution allows us to compute the accounting entries by pencil and paper.

The insurer uses the IFRS 17 general measurement model for financial statements on June 30 and December 31. The insurer could also use the premium allocation approach, since the coverage period is one year, but it does not choose to do so.

The mean of the underlying distribution of primary claims does not give the fulfilment cash flows of the stop-loss reinsurance contract. Instead, we use the mean of the excess claim distribution; that is, the mean of the layer of loss between the aggregate retention and the aggregate retention + the policy limit.

The primary claims needed to reach the aggregate retention in the second half year depend on the primary claims in the first half year, so the expected excess claims depend on the primary claims in the first half year.

For simplicity, we assume a discount rate of zero and a risk adjustment for non-financial risk of zero.

The expected primary claims for the full contract term is

$$50\% \times 50\% \times (20 + 20) + 2 \times 50\% \times 50\% \times (20 + 80) + 50\% \times 50\% \times (80 + 80) = 100$$

The excess claims are the higher of zero and the primary claims minus 100, subject to an upper bound of 120.

! If the primary claims are 20 + 20 = 40, the excess claims are zero.
! If the primary claims are 20 + 80 = 100, the excess claims are zero.
! If the primary claims are 80 + 80 = 160, the excess claims are 60.

The expected excess claims for the full year is 50% × 50% × 0 + 2 × 50% × 50% × 0 + 50% × 50% × 60 = 15.

The premium for the stop-loss contract is 25 for the full year. The expected income is 25 – 15 = 10 for the full year or 10 / 2 = 5 for each half year. The contractual service margin at initial recognition is 10.

Measuring revenue

To compute the profit or loss in each half year, we consider two ways to measure revenue:

Time-based methods for measuring progress base revenue on the passage of time, sometimes adjusted for the time value of money. Insurance revenue for the premium allocation approach is based on the passage of time. The allocated acquisition expenses included in insurance revenue even for the general measurement model are also based on the passage of time and amortized using the discount rate for IFRS 17 cash flows.

For the general measurement model, insurance revenue is determined by the change in the carrying value of the liability from the beginning to the end of the year, just as revenue from financial assets held at fair value through profit or loss is determined. Insurance revenue for insurance services provided (incurred claims and claim adjusting expenses) is based on the change in the carrying value of the liability for remaining coverage excluding the loss component.

If we used a time-based method for measuring progress, we might show insurance revenue of 10 / 2 = 5 each half year as the allocation of the contractual service margin to profit or loss. But the general measurement model bases the insurance revenue on the change in the carrying value of the liability for remaining coverage.

The excess claims in the first half year are zero whether the primary claims are 20 or 80, both of which are below the retention. For the second half of the year, the expected excess claims are

! zero if the primary claims in the first half year are 20
! ½ × (0 + 60) = 30 if the primary claims in the first half year are 80

For the general measurement model, the insurance revenue in the first half year is computed as follows:

! if the primary claims in the first half year are 20, the fulfilment cash flows for the stop-loss contract change from 15 to zero, since the future claims (even if they are 80) will not breach the retention. The contractual service margin (before allocation to profit or loss) changes from 10 to 25, and half is allocated to profit or loss in the first half year: ½ × 25 = 12.50.

! if the primary claims in the first half year are 80, the fulfilment cash flows for the stop-loss contract change from 15 to 30 (a 50% chance of 60 and a 50% chance of 0). The contractual service margin (before allocation to profit or loss) changes from 10 to 0. The loss component becomes 5 (recognized in profit or loss) and the allocation of the contractual service margin to profit or loss in the first half year is zero.

For most insurance contracts, incurred claims in one period do not affect the liability for remaining coverage is subsequent periods. For insurance contracts with aggregate retentions, incurred claims in the first half of the coverage period affect the liability for remaining coverage in the second half of the coverage period.

End-notes:

¹   See IFRS 17 *Basis for Conclusions* paragraph BC296: "A reinsurance contract is a type of insurance contract. … IFRS 17 requires entities that issue reinsurance contracts to use the same recognition and measurement approach as they use for other insurance contracts."

²   See IFRS 17 paragraph 7(g): "An entity shall not apply IFRS 17 to … insurance contracts in which the entity is the policyholder, unless those contracts are reinsurance contracts held."

³   See IFRS 17 paragraph 63: "the entity shall use consistent assumptions to measure the estimates of the present value of the future cash flows for the group of reinsurance contracts held and the estimates of the present value of the future cash flows for the group(s) of underlying insurance contracts." See also IFRS 17 *Basis for Conclusions* paragraph BC300: "When estimating cash flows and the associated adjustments for the financial risk and the time value of money arising from reinsurance contracts held, the entity would use assumptions consistent with those it uses for the underlying contracts."

⁴   See IFRS 17 paragraph 82: "An entity shall present income or expenses from reinsurance contracts held separately from the expenses or income from insurance contracts issued."

⁵   See IFRS 17 *Basis for Conclusions* paragraph BC298: "IFRS 17 requires a reinsurance contract held to be accounted for separately from the underlying insurance contracts to which it relates … because an entity that holds a reinsurance contract does not normally have a right to reduce the amounts it owes to the underlying policyholder by amounts it expects to receive from the reinsurer."

⁶   See IFRS 17 *Basis for Conclusions* paragraph BC297: "Although both an issuer of direct insurance contracts and a reinsurer of those contracts will measure their contractual rights and obligations on the same basis, in practice they will not necessarily arrive at the same amount. Differences between the estimates for the reinsurance contract and the underlying contracts may arise because the issuer of the underlying insurance contracts and the reinsurer may base estimates on access to different information …"

⁷   See IFRS 17 paragraph 63: "… the entity shall use consistent assumptions to measure the estimates of the present value of the future cash flows for the group of reinsurance contracts held and the estimates of the present value of the future cash flows for the group(s) of underlying insurance contracts."

⁸   See IFRS 17 paragraph 63: "… the entity shall include in the estimates of the present value of the future cash flows for the group of reinsurance contracts held the effect of any risk of non-performance by the issuer of the reinsurance contract, including the effects of collateral and losses from disputes."

⁹   See IFRS 17 paragraph 37.

¹⁰   See IFRS 17 paragraph 64: "Instead of applying paragraph 37, an entity shall determine the risk adjustment for non-financial risk so that it represents the amount of risk being transferred by the holder of the group of reinsurance contracts to the issuer of those contracts."

¹¹   See IFRS 17 paragraph 65(a): "on initial recognition … reinsurance contracts held [have] no unearned profit but instead a net cost or net gain on purchasing the reinsurance. Hence, on initial recognition the entity shall recognise any net cost or net gain on purchasing the group of reinsurance contracts held as a contractual service margin…"

¹²   See IFRS 17 paragraph 65(b): "[If] the net cost of purchasing reinsurance coverage relates to events that occurred before the purchase of the group of reinsurance contracts … the entity shall recognise such a cost immediately in profit or loss as an expense."

¹³   Retroactive reinsurance is often bought in the United States, where both GAAP and statutory accounting require general insurance claims to be reported at nominal value, not at present value. The premium for the retroactive reinsurance is computed on a present value basis, and the reduction in the outstanding claims is

on a nominal value basis, for a net accounting gain.

[14]   See IFRS 17 paragraph 66: "An entity shall measure the contractual service margin at the end of the reporting period for a group of reinsurance contracts held as the carrying amount determined at the start of the reporting period, adjusted for … changes in the fulfilment cash flows … for future service unless the change results from a change in fulfilment cash flows allocated to a group of underlying insurance contracts that does not adjust the contractual service margin for the group of underlying insurance contracts." The wording above means that if the change in the fulfilment cash flows does not affect the contractual service margin for the underlying insurance contracts because these contracts are onerous, the change in the fulfilment cash flows does not affect the contractual service margin for the reinsurance contract held. The text of IFRS 17 cited here pertains to changes in the contractual service margin, not to the contractual service margin at initial recognition. IFRS 17 paragraph 65(a), says that "on initial recognition … the entity shall recognise any net cost or net gain on purchasing the group of reinsurance contracts held as a contractual service margin measured at an amount equal to the … fulfilment cash flows …" and does not discuss onerous contracts. The IFRS 17 *Illustrative Examples* #12 shows reinsurance contracts held on onerous contracts at subsequent measurement, not at initial recognition. If the onerous contracts rules for the contractual service margin on reinsurance contracts held do not apply at initial recognition, the simple illustrations above should be re-worded to relate to subsequent measurement. The illustrations below for reinsurance contracts held on onerous contracts pertain to subsequent measurement.

[15]   See IFRS 17 paragraph 68.

[16]   See IFRS 17 paragraph 63: "the entity shall include in the estimates of the present value of the future cash flows for the group of reinsurance contracts held the effect of any risk of non-performance by the issuer of the reinsurance contract, including the effects of collateral and losses from disputes."

[17]   See IFRS 17 paragraph 105(b): "To complete the reconciliations in paragraphs 100–101, an entity shall also disclose separately … the effect of changes in the risk of non-performance by the issuer of reinsurance contracts held."

[18]   See IFRS 17 paragraph 67: "Changes in the fulfilment cash flows that result from changes in the risk of non-performance by the issuer of a reinsurance contract held do not relate to future service and shall not adjust the contractual service margin."