

FA Module 23: IFRS 17 reinsurance practice problems

(The attached PDF file has better formatting.)

The exercises below explain the measurement of reinsurance contracts held.

Proportional reinsurance pays a percentage of the losses on the underlying insurance contracts and receives a percentage of the premium. The reinsurance premium may be reduced by a ceding commission that

- ! reflects the acquisition expenses incurred by the primary insurer but not incurred by the reinsurer
- ! enables the reinsurer to set the premium to its expected costs.

Excess-of-loss reinsurance pays losses above a retention. IFRS 17 accounting is the same for both excess-of-loss and proportional reinsurance.

The ceding insurer buys the reinsurance contract; the assuming reinsurer sells the reinsurance contract.

Exercise 23.1: Reinsurance contract held, initial recognition

An insurer writes primary insurance contracts on January 1, 20X1, for premium of 1,000 and buys a 30% proportional reinsurance contract covering the risks. The premiums on the underlying insurance contracts and the reinsurance contract are paid right after initial recognition. At initial recognition, the present value of future cash outflows (claims) on the underlying insurance contracts is 900, and the risk adjustment for non-financial risk is 60. The reinsurance contract has no ceding commission.

At initial recognition:

- A. What are the fulfilment cash flows for the underlying insurance contracts?
- B. What is the contractual service margin for the underlying insurance contracts?
- C. What is the insurance contract liability for the underlying insurance contracts?
- D. What are the fulfilment cash flows for the reinsurance contract held?
- E. What is the contractual service margin for the reinsurance contract held?
- F. What is the reinsurance contract asset for the reinsurance contract held?

Part A: The premiums are paid right after initial recognition, so their present value is 1,000. The present value of net cash outflows is $900 - 1,000 = -100$. The risk adjustment for non-financial risk is 60, so the fulfilment cash flows are $-100 + 60 = -40$.

Part B: The contractual service margin at initial recognition is the negative of the fulfilment cash flows but not less than zero: $-(-40) = 40$.

Part C: The insurance contract liability is the fulfilment cash flows plus the contractual service margin $= -40 + 40 = \text{zero}$. Unless the contract is onerous, the insurance contract liability at initial recognition is zero.

Part D: A 30% proportion reinsurance contract held has fulfilment cash flows that are -30% times those for the underlying insurance contracts. For the primary insurer, the reinsurance contract held has

- ! premium = cash outflow of $30\% \times 1,000 = 300$
- ! claims = cash inflow with a present value of $30\% \times 900 = 270$.
- ! risk adjustment for non-financial risk = $-30\% \times 60 = -18$.

The fulfilment cash flows at initial recognition $= 300 - 270 - 18 = 12$.

Part E: The contractual service margin on the reinsurance contract held at initial recognition is -12 .

The contractual service margin is zero or positive for primary insurance contracts but may be positive, zero, or negative for reinsurance contracts held.

Primary insurance contracts have unearned profit at initial recognition that is not recognized until it is earned, so it is held as the contractual service margin. If the contracts are onerous, the expected loss may not be deferred (the contractual service margin may not be negative) but is reported immediately in profit or loss.

Reinsurance contracts reduce the risk for the ceding insurer but the reinsurer charges for the risk reduction. The reinsurance contract has an expected loss on initial recognition that offsets some of the expected profit from the underlying insurance contracts.

If the underlying insurance contracts have expected profits (positive contractual service margin), the expected loss on the reinsurance contract is deferred over the contract period, to match the expected profits on the underlying insurance contracts.

Part F: At initial recognition, if the underlying insurance contracts are not onerous, the insurance contract liability for the underlying insurance contracts is zero (the sum of the fulfilment cash flows and the contractual service margin). After the premium is paid, the fulfilment cash flows on the underlying insurance contracts are positive and the insurance contract liability is positive.

At initial recognition, the reinsurance contract held has generally has a positive net future cash flow, which is offset by a negative contractual service margin. After the reinsurance premium is paid, reinsurance contracts held have expected cash inflows to the ceding insurer. The fulfilment cash flows are cash inflows to the ceding insurer, so the ceding insurer holds a reinsurance contract asset, not an insurance contract liability.

Exercise 23.2: Reinsurance contract held, initial recognition, with ceding commission

An insurer writes primary contracts on January 1, 20X1, for premium of 1,000 and buys a 30% proportional reinsurance contract covering the risks. The premiums on the underlying contracts and the reinsurance contract are paid right after initial recognition. At initial recognition, the present value of future cash outflows (claims) on the underlying insurance contracts is 900, and the risk adjustment for non-financial risk is 60. The reinsurance contract has ceding commission of 40 (or $40/300 = 13.33\%$ of the reinsurance premium).

The fulfilment cash flows, contractual service margin, and insurance contract liability for the underlying insurance contracts are the same as for the previous exercise, but the ceding commission changes the values for the reinsurance contract held. At initial recognition:

- A. What are the fulfilment cash flows for the reinsurance contract held?
- B. What is the contractual service margin for the reinsurance contract held?
- C. What is the reinsurance contract asset for the reinsurance contract held?

Part A: A 30% proportion reinsurance contract held has future cash inflows (claims) and risk adjustments for non-financial risk that are 30% times the future cash outflows (claims) and risk adjustments for non-financial risk for the underlying insurance contracts. The future cash outflow (reinsurance premium) is 30% of the premium for the underlying insurance contracts, minus the ceding commission. For the primary insurer here, the reinsurance contract held has

- ! premium = cash outflow of $30\% \times 1,000 - 40 = 260$
- ! claims = cash inflow with a present value of $30\% \times 900 = 270$.
- ! risk adjustment for non-financial risk = $-30\% \times 60 = -18$.

The fulfilment cash flows at initial recognition = $260 - 270 - 18 = -28$.

Part B: The contractual service margin on the reinsurance contract held at initial recognition is the negative of the fulfilment cash flows = $+28$.

This exercise shows that the contractual service margin at initial recognition for the reinsurance contract held can be positive or negative. In practice, reinsurers do not sell reinsurance contracts that are expected to lose money, so ceding insurers rarely have reinsurance contracts held with positive contractual service margins.

Part C: This reinsurance contracts has negative fulfilment cash flows at initial recognition and an offsetting positive contractual service margin. The reinsurance contract asset at initial recognition is zero.

Exercise 23.3: Subsequent measurement (reinsurance contract): increased fulfilment cash flows

This exercise shows how to re-measure the reinsurance contract asset after initial recognition. For simplicity, the discount rate is zero. The fulfilment cash flows relate to future service (not incurred claims).

An insurer writes primary contracts on January 1, 20X1, and buys a 30% proportional reinsurance contract.

- ! The premium on the underlying insurance contracts is 400, the present value of future cash outflows (claims) is 300, and the contractual service margin is 100.
- ! The reinsurance contract has a premium of 115 (5 less than 30% × 400, reflecting a ceding commission).
 - " The present value of future cash inflows is 300 × 30% = 90.
 - " The contractual service margin is 90 – 115 = (25).

These values do not change from January 1, 20X1, until immediately before the end of 20X1. Immediately before the end of 20X1, the ceding insurer's financial statements show

	insurance contract liability	reinsurance contract asset
fulfilment cash flows	300	(90)
contractual service margin	100	(25)
insurance contract liability (asset)	400	(115)

If at the end of 20X1, the ceding insurer increases the estimate of the fulfilment cash flows from 300 to 350:

- A. What are the fulfilment cash flows, contractual service margin, and insurance contract liability at the end of 20X1 for the underlying insurance contracts?
- B. What are the fulfilment cash flows, contractual service margin, and insurance contract liability at the end of 20X1 for the reinsurance contract held?

If at the end of 20X1, the ceding insurer increases the estimate of the fulfilment cash flows from 300 to 460:

- C. What are the fulfilment cash flows, contractual service margin, and insurance contract liability at the end of 20X1 for the underlying insurance contracts?
- D. What is the profit or loss for 20X1 from the underlying insurance contracts?
- E. What are the fulfilment cash flows, contractual service margin, and insurance contract liability at the end of 20X1 for the reinsurance contract held?
- F. What is the profit or loss for 20X1 from the reinsurance contract held?

Part A: The fulfilment cash flows are re-estimated at 350.

Since the fulfilment cash flows relate to future service, the contractual service margin decreases by 50 to offset the 50 increase in the fulfilment cash flows. The revised contractual service margin is 100 – 50 = 50.

The insurance contract liability = the fulfilment cash flows + the contractual service margin = 350 + 50 = 400.

Part B: The fulfilment cash flows on the reinsurance contract held are –30% of the fulfilment cash flows on the underlying insurance contracts: 350 × –30% = (105). The negative fulfilment cash flows means that the ceding insurer expects the present value of future cash inflows from the reinsurance contract held to be 105.

The contractual service margin changes to offset the change in the fulfilment cash flows:

$$-25 + 30\% \times 50 = (10)$$

The reinsurance contract asset = the fulfilment cash flows + the contractual service margin: -105 + -10 = (115)

- ! The change in the contractual service margin offsets the change in the fulfilment cash flows.
- ! The reinsurance contract asset does not change, as the underlying insurance contracts are not onerous.

Part C: The fulfilment cash flows are re-estimated as 460, for an increase of $460 - 300 = 160$.

The contractual service margin decreases to offset the increase in the fulfilment cash flows, but it cannot fall below zero. Since the increase in the fulfilment cash flows is more than the contractual service margin, the contractual service margin becomes zero, and the excess ($160 - 100 = 60$) is reported as a loss.

The insurance contract liability is the fulfilment cash flows + the contractual service margin = $460 + 0 = 460$.

Part D: The profit or loss for 20X1 is a loss of 60.

Part E: The fulfilment cash flows for the reinsurance contract held is $-30\% \times$ the fulfilment cash flows for the underlying insurance contracts = $-30\% \times 460 = (138)$.

The change in the contractual service margin for the reinsurance contract held is $-30\% \times$ the change in the contractual service margin for the underlying insurance contracts = $-30\% \times -100 = 30$. The revised contractual service margin for the reinsurance contract held is $-25 + 30 = +5$.

The reinsurance contract asset is the fulfilment cash flows + the contractual service margin = $-138 + 5 = (133)$

Part F: The profit or loss for 20X1 from the reinsurance contract held reflects the change in the reinsurance contract asset. The reinsurance contract asset changes from -115 to -133 , so the ceding insurer shows a profit of $-115 - (-133) = 18$ in the statement of profit or loss. For the sign convention of the IFRS 17 *Illustrative Examples*, where profits are negative, the profit is $-133 - (-115) = (18.00)$.

A firm may not usually recognize profit from its services before it provides them, yet the primary insurer here recognizes a profit up-front from the reinsurance contract held. IFRS 17 explains that the reinsurance contract held does not have unearned profits. It has a net gain (if its present value of future cash flows shows a profit at initial recognition) or a net loss (if its present value of future cash flows shows a loss at initial recognition).

IFRS 17 matches the profit recognition on the reinsurance contracts held with the profit recognition on the underlying insurance contracts. At initial recognition, if the underlying insurance contracts are not onerous and the reinsurance contract has an expected loss (the compensation to the reinsurer), the positive contractual service margin on the underlying insurance contracts is recognized over the contract period and the negative contractual service margin on the reinsurance contract held is recognized in the same manner.

If the fulfilment cash flows on the underlying insurance contracts increase but the contracts do not become onerous, the contractual service margin on the underlying insurance contracts decreases and the contractual service margin on the reinsurance contract held increases. The revisions to the contractual service margins do not affect the insurance contract liability or the reinsurance contract asset, and do not affect profit or loss.

If the fulfilment cash flows on the underlying insurance contracts increase and the contracts become onerous, the contractual service margin on the underlying insurance contracts decreases to zero and the contractual service margin on the reinsurance contract held increases correspondingly, though not necessarily to zero. For a proportional reinsurance contract of $P\%$, if the contractual service margin on the underlying insurance contracts decreases by Z , the contractual service margin on the reinsurance contract held increases $Z \times P\%$.

The profit or loss from the reinsurance contract held reflects the profit or loss from the underlying insurance contracts. The expected cash flows that cause a profit or loss on the underlying insurance contracts cause an offsetting loss or profit on the reinsurance contract held:

- ! On the underlying insurance contracts, the excess of the increase in the fulfilment cash flows over the decrease in the contractual service margin is a loss for the ceding insurer.

! On the reinsurance contract held, the excess of the decrease in the fulfilment cash flows over the increase in the contractual service margin is a gain for the ceding insurer.

The exercises above are for proportional reinsurance contracts. For non-proportional reinsurance contracts held, the accounting procedures are the same, but one must keep track of the change in the contractual service margin on the underlying insurance contracts to determine whether the contractual service margin on the reinsurance contract held also changes (and by how much).

Exercise 23.4: Subsequent measurement (reinsurance contract): increased fulfilment cash flows

This exercise shows how to re-measure the reinsurance contract asset after initial recognition.

An insurer has a group of non-onerous insurance contracts and a 60% proportional reinsurance contract. To keep the illustration clear, we do not deal with insurance finance expense, the risk of non-performance, or the allocation of the contractual service margin to profit or loss, all of which are reviewed in other exercises. The fulfilment cash flows here relate to future service, not incurred claims. In practice, changes in the contractual service margin cause changes in the allocation to profit or loss, though this exercise doesn't consider them.

We might phrase this exercise as an insurer writes primary contracts on December 31, 20X0, and buys a 60% proportional reinsurance contract covering the risks. The premiums on the primary contracts and reinsurance contract are paid on December 31, 20X0. On December 30, 20X1 (right before December 31, 20X1):

- ! the fulfilment cash flows on the primary contracts = 200
- ! the contractual service margin on the primary contracts = 90
- ! the contractual service margin on the reinsurance contract held = -45

- ! The contractual service margin on reinsurance contracts issued by the reinsurer, like the contractual service margin on primary insurance contracts issued by primary insurers, is non-negative.
- ! The ceding insurer has an expected loss on the reinsurance contract held (to pay for the reinsurance services), so it has a negative contractual service margin on the reinsurance contract held.

The fulfilment cash flows on the reinsurance contract held are $-200 \times 60\% = (120)$, assuming all acquisition cash flows have already occurred. (Acquisition cash flows are not subject to the proportional reinsurance.)

The reinsurer did not price the reinsurance contract the same as the primary insurer priced the underlying contracts. The reinsurer reduced the premium (perhaps for a ceding commission), so the contractual service margin on the reinsurance contract held is less than -60% of the contractual service margin on the underlying insurance contracts.

- ! Contractual service margin on underlying contracts \times reinsurance percentage = $90 \times 60\% = 54$.
- ! Contractual service margin on reinsurance contract held is -45, implying a ceding commission of 9.

Directly attributable acquisition cash flows on the primary insurance contracts affect their fulfilment cash flows and contractual service margin but not those of the reinsurance contract held. We don't know the exact ceding commission, though it is more than 9, assuming the directly attributable acquisition cash flows are positive.

On December 31, 20X1, the insurer re-measures the fulfilment cash flows on the underlying contracts as 240. The increase in the fulfilment cash flows relates to future services, not incurred claims. The questions below refer to the remeasurement itself, not to any changes in the allocation to profit or loss stemming from it.

- A. What is the insurance contract liability on the underlying contracts before the re-measurement?
- B. What is the change in the fulfilment cash flows on the underlying contracts?
- C. What is the revised contractual service margin on the underlying contracts?
- D. What is the profit or loss (in the statement of profit and loss) for the underlying contracts?
- E. What is the revised insurance contract liability on the underlying contracts?
- F. What are the fulfilment cash flows on the reinsurance contract held before the re-measurement?
- G. What is the insurance contract asset on the reinsurance contract held before the re-measurement?
- H. What is the change in the fulfilment cash flows on the reinsurance contract held?
- I. What is the revised contractual service margin on the reinsurance contract held?
- J. What is the profit or loss (in the statement of profit and loss) for the reinsurance contract held?
- K. What is the revised insurance contract asset on the reinsurance contract held?

Part A: Other exercises derive the fulfilment cash flows and the contractual service margin from premiums, claims, and acquisition expenses. This exercise gives the fulfilment cash flows and the contractual service margin after initial recognition, just before a remeasurement of the fulfilment cash flows.

If the contracts are not onerous and the contractual service margin is positive, the insurance contract liability = the fulfilment cash flows + the contractual service margin = $200 + 90 = 290$. (If the contracts are onerous and the contractual service margin is zero, the insurance contract liability = the fulfilment cash flows.)

Part B: The change in the fulfilment cash flows on the underlying contracts = $240 - 200 = 40$. The increase in the fulfilment cash flows means the insurer expects to pay more claims or expenses or that it sets a higher risk adjustment. The change in the fulfilment cash flows is a re-estimate of the present value of claims that are covered by the proportional reinsurance contract.

Part C: The increase in the fulfilment cash flows is less than the contractual service margin, so the contractual service margin is reduced to offset the increase in the fulfilment cash flows: $90 - 40 = 50$.

Part D: The profit or loss (in the statement of profit and loss) for the contracts is zero, since the increase in the fulfilment cash flows is offset by the decrease in the contractual service margin. The allocation of the contractual service margin to profit or loss for 20X1 (not reviewed here) will decrease.

Part E: The revised insurance contract liability for the underlying contracts remains 290, since the increase in the fulfilment cash flows is offset by the decrease in the contractual service margin: $240 + 50 = 290$.

Part F: The premiums on the contracts have already been paid, so the claim recoverables on the reinsurance contract equal the proportional reinsurance ratio time the claims to be paid on the underlying contracts = $200 \times 60\% = 120$, which equals the fulfilment cash flows on the reinsurance contract before the re-measurement.

- ! The fulfilment cash flows on the insurance contracts are outflows from the insurer.
- ! The inflows (recoverables) from the reinsurance contract are shown as negative figures: -120 .

Part G: The reinsurance contract asset is like the insurance contract liability.

- ! The reinsurer has an insurance contract liability for the reinsurance contract it issues.
- ! The ceding insurer has a reinsurance contract asset for the reinsurance contract it holds.

The reinsurance contract asset = fulfilment cash flows + the contractual service margin = $-120 + -45 = -165$.

Part H: The revised fulfilment cash flows on the reinsurance contract = $-60\% \times$ the revised fulfilment cash flows on the primary insurance contracts = $240 \times -60\% = -144$.

- ! The change in the fulfilment cash flows on the reinsurance contract = $-144 - -120 = -24$.
- ! This is -60% of the change in the fulfilment cash flows for the underlying insurance contracts:
 - " $40 \times -60\% = -24$.

Part I: The revised contractual service margin on the reinsurance contract is the contractual service margin before the change in the fulfilment cash flows – the change in the fulfilment cash flows = $-45 - (-24) = -21$.

Viewing this relation from the perspective of the reinsurer may be clearer. If the reinsurer and the ceding insurer use the same assumptions and the acquisition cash flows of the reinsurer are 60% of the acquisition cash flows of the primary insurer, the reinsurer has a contractual service margin of 45 before the change in the fulfilment cash flows; the change is +24; and the contractual service margin after the change is 21:

$$45 - 24 = 21.$$

Part J: The profit or loss (in the statement of profit and loss) for the reinsurance contract held by the primary insurer is zero: the change in the fulfilment cash flows is offset by a change in the contractual service margin.

Part K: The revised insurance contract asset on the reinsurance contract held by the primary insurer is the revised fulfilment cash flows + the revised contractual service margin = $-144 + -21 = -165$.

The type of change in the fulfilment cash flows determines whether it affects profit or loss.

- ! Differences of actual cash flows from expected cash flows change profit and loss.
- ! Changes in estimates for current or past services provided (incurred claims) change profit and loss.
- ! Changes in estimates for future services affect profit and loss only if they make the contract onerous or make an onerous contract less onerous.

If an insurer sells a contract and expects to earn 100 (net of fulfilment cash flows), it books a contractual service margin of 100, not profits of 100. If it later revises the estimated future profits to 40 or 160, it revises the contractual service margin to 40 or 160, but shows no immediate profit. If it revises the estimated future profits to -30 , it reduces the contractual service margin to zero and recognizes a loss of -30 .

In this exercise, the fulfilment cash flows (the expected present value of cash outflows) increase by 40, but the ceding insurer reports no immediate loss and its insurance contract liability does not change. It reports no gain from the reinsurance contract it holds and its insurance contract asset does not change.

Exercise 23.5: Subsequent measurement of reinsurance contract: increased fulfilment cash flows (onerous)

An insurer writes primary contracts on December 31, 20X0, and buys a 60% proportional reinsurance contract covering the risks. The premiums on the primary contracts and reinsurance contract are paid on December 31, 20X0. On December 30, 20X1 (right before December 31, 20X1):

- ! the fulfilment cash flows on the primary contracts = 200
- ! the contractual service margin on the primary contracts = 90
- ! the contractual service margin on the reinsurance contract = -45

The reinsurance contract is priced differently from the underlying contracts, so its contractual service margin is not $-60\% \times$ the contractual service margin on the underlying contracts.

On December 31, 20X1, the insurer re-measures the fulfilment cash flows on the underlying contracts as 320. The increase in the fulfilment cash flows relates to future services, not incurred claims.

- A. What is the insurance contract liability on the underlying contracts before the re-measurement?
- B. What is the change in the fulfilment cash flows on the underlying contracts?
- C. What is the revised contractual service margin on the underlying contracts?
- D. What is the profit or loss (in the statement of profit and loss) for the underlying contracts?
- E. What is the revised insurance contract liability on the underlying contracts?
- F. What are the fulfilment cash flows on the reinsurance contract held before the re-measurement?
- G. What is the insurance contract asset on the reinsurance contract held before the re-measurement?
- H. What is the change in the fulfilment cash flows on the reinsurance contract held?
- I. What is the revised contractual service margin on the reinsurance contract held?
- J. What is the profit or loss (in the statement of profit and loss) for the reinsurance contract held?
- K. What is the revised insurance contract asset on the reinsurance contract held?

Part A: Other exercises derive the fulfilment cash flows and the contractual service margin from premiums, claims, and acquisition expenses. The exercise begins with the fulfilment cash flows and the contractual service margin after initial recognition. At any date, the insurance contract liability = the fulfilment cash flows + the contractual service margin = $200 + 90 = 290$.

Part B: The change in the fulfilment cash flows on the underlying contracts = $320 - 200 = 120$. The fulfilment cash flows increase because the insurer expects to pay more claims or it raised the risk adjustment.

Part C: The revised contractual service margin on the underlying contracts = $\max(90 - 120, 0) = 0$. An increase in the fulfilment cash flows that relate to future services (not incurred claims) reduces the contractual service margin, but not below zero. The underlying contracts have become onerous.

Part D: The increase in the fulfilment cash flows is only partly offset by the reduction in the contractual service margin. The part that is not offset is reported in profit and loss as a loss of $120 - 90 = 30$.

Part E: The revised insurance contract liability for the underlying contracts is $320 + 0 = 320$.

Part F: The premiums on the contracts have already been paid, so the loss recoverables on the reinsurance contract equal the proportional reinsurance ratio \times the present value of the claims to be paid on the underlying contracts = $200 \times 60\% = 120$, which equals the fulfilment cash flows on the reinsurance contract before the re-measurement. The fulfilment cash flows on primary contracts are outflows from the insurer, so the inflows (recoverables) from the reinsurance contract are shown as negative figures: -120 .

Part G: The reinsurance contract asset for the ceding insurer = fulfilment cash flows + the contractual service margin = $-120 + -45 = -165$.

Part H: The revised fulfilment cash flows on the reinsurance contract = $-60\% \times$ the revised fulfilment cash flows on the primary insurance contracts = $320 \times -60\% = -192$.

- ! The change in the fulfilment cash flows on the reinsurance contract = $-192 - -120 = -72$.
- ! This is -60% of the change in the fulfilment cash flows for the underlying insurance contracts:
 - " $120 \times -60\% = -72$.

Part I: The revised contractual service margin on the reinsurance contract is the contractual service margin before the change in the fulfilment cash flows $- 60\%$ of the change in the contractual service margin for the underlying insurance contracts: $-45 - 60\% \times -90 = 9$.

- ! The contractual service margin on a primary contract is capped from below at zero.
- ! The contractual service margin on a reinsurance contract *issued* is also capped from below at zero.
- ! The contractual service margin on a reinsurance contract *held* is capped where the underlying insurance contracts become onerous.
 - " The contractual service margin on the reinsurance contract held is 9 less than 60% of the contractual service margin on the underlying insurance contracts before the change in the fulfilment cash flows:
 - " $60\% \times 90 - 45 = 9$.
- ! The contractual service margin on the reinsurance contract held by the primary insurer is capped at 9.
 - " The contractual service margin on the reinsurance contract held with no cap would have been 27.
 - " The profit on the primary insurer's statement of profit and loss with the cap is $27 - 9$.

Part J: The profit or loss for the reinsurance contract held is 18, since only 9 of the change in the fulfilment cash flows is offset by the change in the contractual service margin.

The primary insurance contracts show a loss of 30. The reinsurance contract offsets 60% of this loss, or a gain of $60\% \times 30 = 18$.

The primary insurer shows a loss of 30 from the underlying insurance contracts and an offsetting gain of 18 from the proportion reinsurance contract held. The net result is a loss of 12.

Part K: The revised insurance contract asset on the reinsurance contract held by the primary insurer is the revised fulfilment cash flows + the revised contractual service margin = $-192 + 9 = -183$.