FA Module 24: IFRS 17: reconciliation exhibits – practice problems

(The attached PDF file has better formatting.)

*Subsequent measurement and reconciliation exhibits*

Measurement after initial recognition is explained in paragraphs 40, 44, 48, 101, B96, and B97).

Paragraph 40 says that the insurance contract liability at any valuation date is the sum of

- the liability for remaining coverage comprising:
  - the fulfilment cash flows related to future service
  - the contractual service margin
- the liability for incurred claims (the fulfilment cash flows related to past service)

Paragraph 44 says that the contractual service margin at the end of the year equals the contractual service margin at the beginning of the year adjusted for:

- new contracts added to the group
- interest accreted on the contractual service margin, using the discount rate at initial recognition
- changes in fulfilment cash flows relating to future service, except for
  - increases in the fulfilment cash flows that exceed the contractual service margin and cause a loss
  - decreases in the fulfilment cash flows that reverse previous losses

Paragraph 48 says that insurance contracts become onerous (or more onerous) if increases in the fulfilment cash flows relating to future service exceed the contractual service margin.

Paragraph 101 explains the reconciliation exhibit for the insurance contract liability (discussed further below).

Paragraphs B96 and B97 explain what changes affect the contractual service margin. Changes affecting the contractual service margin are

- Premium received that relate to future service (and related acquisition cash flows and premium taxes)
- Changes in estimates of claims that have not yet occurred
- Differences between expected and actual investment components
- Changes in the risk adjustment for non-financial risk for claims that have not yet occurred

The present values of these changes in the contractual service margin uses the discount rates determined at initial recognition, not the current discount rates.

Changes that relate to current service and do *not* affect the contractual service margin are

- Changes in current discount rates
- Changes in estimates of claims that have already occurred
- Differences between expected and actual values of claims that have already occurred

The two sets of practice problems for this module have the same initial estimates and the same actual figures for 20X1. In 20X2:

- for the non-onerous contracts, subsequent measurements have lower costs
- for the onerous contracts, subsequent measurements have higher costs and the group becomes onerous.

Exercise 24.1: Insurance contracts subsequent measurement (non-onerous)

The exercise explains the fulfilment cash flows, contractual service margin, and the insurance contract liability.

The exercise covers material in three modules:

- Measurement at initial recognition (Module 21)
- Measurement at subsequent recognition (Module 22)
- Presentation of results in the financial statements (Module 24)

An insurer issues insurance contracts on January 1, 20X1, with coverage periods of three years.

- Premiums of 900 are paid right after initial recognition.
- The discount rate for the fulfilment cash flows is 5% *per annum*.
- Acquisition cash flows directly attributable to the insurance contracts are zero.
- No contracts lapse before the end of the coverage period.

At initial recognition, the insurer estimates

- the cash outflows for claims as 200 each on December 31, 20X1, 20X2, and 20X3.
- the risk adjustment for non-financial risk as 120 in total, or 40 for each claim.

In 20X1, actual claims equal the estimates, and no changes are made to future estimated claims.

In 20X2, the actual claims of 150 are 50 less than originally expected, and the insurer revises

- its estimate of the future cash outflows for 20X3 from 200 to 140,
  - = a decrease in the present value of future cash flows of 60 / 1.05 = 57.14
- the risk adjustment for non-financial risk related to those future cash flows from 40 to 30
  - = a decrease of 10.

The decrease in the present value of future cash flows and in the risk adjustment for non-financial risk is offset by an increase in the contractual service margin.

IFRS 17, Paragraph 101, says

> *… an entity shall also disclose reconciliations from the opening to the closing balances separately for each of:*
>
> *(a) the estimates of the present value of the future cash flows;*
> *(b) the risk adjustment for non-financial risk; and*
> *(c) the contractual service margin.*

The IFRS 17 *Illustrative Examples* calls this table "the source of changes in the fulfilment cash flows."

We form a table with four columns:

- present value of future cash flows
- risk adjustment for non-financial risk
- contractual service margin
- insurance contract liability

The table has seven rows:

- Opening balance
- Changes related to future service
- Cash inflows
- Insurance finance expenses
- Changes related to current service
- Cash outflows
- Closing balance

The table is shown in the IFRS 17 *Illustrative Examples*. The table is required by paragraph 99: "an entity shall disclose in a table the reconciliations …," but the exact format is not prescribed.

The right-most column in the table below is the sum of the three preceding columns listed above.

The rows of this table are specified in paragraphs 100, 104, 105, and 106:

Paragraph 100: "An entity shall disclose reconciliations from the *opening* to the *closing balances* …"

Paragraph 104:

> *An entity shall separately disclose in the reconciliations … each of the following amounts related to insurance services:*
>
> *(a) changes that relate to future service …*
> *(b) changes that relate to current service …*

Paragraph 105:

> *an entity shall also disclose separately each of the following amounts …*
>
> *(a) cash flows in the period, including:*
> *(i) premiums received …*
> *(iii) incurred claims paid and other insurance service expenses paid …*
> *(b) the effect of changes in the risk of non-performance by the issuer of reinsurance contracts held*
> *(c) insurance finance income or expenses …*

Paragraph 106:

> *an entity shall disclose an analysis of the insurance revenue … comprising:*
>
> *(a) the amounts relating to the changes in the liability for remaining coverage … disclosing:*
> *(i) the insurance service expenses …*
> *(ii) the change in the risk adjustment for non-financial risk …*
> *(iii) the amount of the contractual service margin recognised in profit or loss …*
> *(b) the allocation of the portion of the premiums related to the recovery of insurance acquisition cash flows.*

The structure of the table is not prescribed by IFRS 17, but insurers will likely use the format here, which is taken from the IFRS 17 *Illustrative Examples*.

We show the entries for each year, beginning with 20X1.

The opening balance in the first year is zero. The opening balance in subsequent years is the closing balance of the previous year. The format of the table is

| | *Present Value of Future Cash Flows* | *Risk Adjustment For Non-financial Risk* | *Contractual Service Margin* | *Insurance Contract Liability* |
|---|---|---|---|---|
| *Opening Balance* | | | | |
| *Changes for Future Service* | | | | |
| *Cash Inflows* | | | | |
| *Insurance Finance Expenses* | | | | |
| *Changes for Current Service* | | | | |
| *Cash Outflows* | | | | |
| *Closing Balance* | | | | |

For each column of the 20X1 table:

A. What are the changes related to future service?
B. What are the cash inflows for premium received?
C. What are the insurance finance expenses?
D. What are the changes related to current services?
E. What are the cash outflows for claim payments?
F. What are the closing balances?

We derive also the fulfilment cash flows at December 31, 20X1, and December 31, 20X2:

G. What are the fulfilment cash flows at the end of 20X1?
H. What are the fulfilment cash flows at the end of 20X2?

This exercise shows a profitable contract that becomes even more profitable at subsequent measurement. Another exercise shows an onerous contract that becomes even more onerous at subsequent measurement.

The accounting entries for 20X1 are shown below.

| | *Present Value of Future Cash Flows* | *Risk Adjustment For Non-financial Risk* | *Contractual Service Margin* | *Insurance Contract Liability* |
|---|---|---|---|---|
| *Opening Balance* | – | – | – | – |
| *Changes for Future Service* | (355.35) | 120.00 | 235.35 | 0.00 |
| *Cash Inflows* | 900.00 | – | – | 900.00 |
| *Insurance Finance Expenses* | 27.23 | – | 11.77 | 39.00 |
| *Changes for Current Service* | – | (40.00) | (82.37) | (122.37) |
| *Cash Outflows* | (200.00) | – | – | (200.00) |
| *Closing Balance* | 371.88 | 80.00 | 164.75 | 616.63 |

*Part A:* At the start of 20X1, all the contracts are new so the "opening balance" row has no entries. In 20X1, insurance services are provided and some claims are paid. The changes related to future service are

- The column "Present Value of Future Cash Flows," has a present value of future cash inflows of 900 (the premium) and a present value of future cash outflows of 544.65 (the claims), so the present value of future cash flows is 544.65 – 900 = (355.35).

- The column "Risk adjustment for non-financial risk" has the risk adjustments of 40 × 3 years = 120. In this exercise, the risk adjustment for non-financial risk is not treated as a cash flow and is not discounted.

- The column "contractual service margin" is –(-355.35 + 120) = 235.35.

- The "Insurance contract liability" is the sum of the preceding three columns: –355.35 + 120 + 235.35 = 0. The new contracts are profitable, and the contractual service margin offsets (the negative future cash outflows + the positive risk adjustment).

*Question:* Some claims are incurred and paid in 20X1; are they future service or current service?

*Answer:* On January 1, the premium received, the estimated cash outflows for claims, and the risk adjustment for non-financial risk relate to future service. On December 31, the claim payment and the release of the risk adjustment for non-financial risk relate to current service.

*Part B:* The cash inflows are the premium of 900; the cash outflows are the claims of –200. Each entry affects the insurance contract liability:

- the premium inflow raises the insurance contract liability 900
- the claims outflow reduces the insurance contract liability 200.

*Question:* The premium of 900 is used to calculate the present value of future cash flows in Part A, and the same premium of 900 is a cash inflow here. Have we double counted it?

*Answer:* The exhibit calculates the insurance contract liability at the end of the year. We start with the present value of future cash flows at initial recognition, before the premium is received. This present value (-355.35) is negative, meaning an expected cash inflow to the insurer that offsets the liability to policyholders.

We add the risk adjustment for non-financial risk of 120, which reduces the value of the contract to the insurer, making it less profitable but still non-onerous. Since the fulfilment cash flows of -235.35 are negative (the

contract is profitable) but the insurance services have not yet been provided, the insurer may not recognize the profit yet, so the contractual service margin is 235.35 and the insurance contract liability is zero.

After initial recognition, the insurer collects the premium. The insurance contract liability at initial recognition assumes the premium is a future cash flow. Once the premium is collected, the future cash flows decrease 900, so the insurance contract liability increases 900. The insurer had a zero liability to policyholders at initial recognition and then collects cash from policyholders, so it has a liability equal to the cash it collects.

*Part C:* The insurance finance expense is divided among the future cash outflows, the contractual service margin, and the risk adjustment for non-financial risk.

- For the column "Present Value of Future Cash Flows," the insurance finance expense is the effect of the time value of money on the future cash flows. If the discount rate does not change and the claims are paid at the end of the year, this time value of money = the present value of future cash outflows × the discount rate: 544.65 × 5% = 27.23.

- For the column "contractual service margin," the insurance finance expense is the contractual service margin × the discount rate: 235.35 × 5% = 11.77.

- The risk adjustment for non-financial risk is not discounted, so it has no insurance finance expense.

- The entry for the column "insurance contract liability" is the sum of the entries in the preceding columns: 27.23 + 11.77 = 39.00.

*Illustration:* A claim paid for C in one year has a present value of C / (1+r), where r is the discount rate. The effect of the time value of money on the present value of the liability is

$$C - C / (1+r) = C \times (1 - 1/(1+r)) = r \times C / (1+r).$$

The fulfilment cash flows use the current discount rate (the market rate at that time), so if the discount rate changes, one must re-compute the present value of future cash flows. The contractual service margin uses the discount rate at initial recognition, so the insurance finance expense on the contractual service margin is that discount rate times the contractual service margin at the beginning of the year.

*Question:* The insurer collected cash (premium) of 900 and earns interest income at 5% *per annum*. Shouldn't the total insurance finance expense be 900 × 5% = 45? How do we get 39?

*Answer:* If the contracts are not onerous,

- the contractual service margin = premium cash inflows – the present value of claims cash outflows – the risk adjustment for non-financial risk ⇛
- the contractual service margin + the present value of cash outflows = the premium – the risk adjustment for non-financial risk = 900 – 120 = 780. Multiplying by the discount rate gives 780 × 5% = 39.

The insurance finance expense is the interest income on the underwriting cash float (premium– expenses – claims). The exercise has no acquisition expenses and no claims paid until the end of the first year. From the 900 premium, 120 is deducted for the risk adjustments. We deduct the ultimate value of the risk adjustments, not the present value (since the risk adjustment is not a cash flow). The remaining premium inflow is 780.

*Question:* Why do we report the risk adjustment for non-financial risk at its ultimate value when all other items are reported at present values? If the 100 risk adjustment is released in one year, shouldn't we show this as

- a risk adjustment for non-financial risk of 100 / (1 + the risk-free rate)
- insurance finance expense during the year of the risk-free rate × 100 / (1 + the risk-free rate)
- the release of the risk adjustment of 100 at the end of the year.

*Answer:* The two methods are equivalent, and insurers may choose either method. The method shown in this exercise is simpler. IFRS 17 explains that if the insurer chooses

> *not to disaggregate the change in the risk adjustment for non-financial risk between the insurance service result and insurance finance income or expenses, it presents the entire change in the risk adjustment for non-financial risk as part of the insurance service result in the statement of profit or loss.*

Cash flows are discounted to present value. The IFRS 17 risk adjustment for non-financial risk is not a cash flow (no cash changes hands), so IFRS 17 does not require discounting. The cost of capital method for the risk adjustment (as used by Solvency II and the Swiss Solvency Test) views the risk adjustment as a cash flow and discounts the value. Other exercises explain the cost of capital method.

*Question:* If the insurer revises its estimate of the discount rate because market interest rates change, do we use the current discount rate or the discount rate at initial recognition?

*Answer:* The procedure differs for the fulfilment cash flows vs the contractual service margin:

- The fulfilment cash flows at each valuation date use the current discount rates (paragraph B72(a)).
- The accretion of interest on the contractual service margin uses the discount rate determined at initial recognition (paragraph B72(b)).

Insurers choose whether to disaggregate insurance finance income or expenses between profit or loss and other comprehensive income (an accounting policy decision) if the estimated discount rate changes.

*Illustration:* An insurance contract expects a claim for 100 in three years. The discount rate at initial recognition (time t=0) is 5% and it is re-estimated one year later (time t=1) as 6%.

The insurance finance expense is the change in the fulfilment cash flows from the time value of money =

$$100 / 1.06^2 – 100 / 1.05^3 = 2.62$$

The insurer has a choice between

- reporting the entire insurance finance expense in profit or loss
- reporting the accretion of interest at the discount rate determined at initial recognition in profit or loss, and the remaining insurance finance expense in other comprehensive income:
  - Profit or loss: $100 / 1.05^2 – 100 / 1.05^3 = 4.32$
  - Other comprehensive income: $100 / 1.06^2 – 100 / 1.05^2 = (1.70)$

*Question:* If the estimated claim payments for future coverage change, the fulfilment cash flows change and the contractual service margin is adjusted to offset the change. In this exercise, if the estimated claim payment (at December 31, 20X2) for year 20X3 changes from 200 to 140, the changes in the fulfilment cash flows and the contractual service margin offset each other. If the discount rate changes, the fulfilment cash flows use the new (current) discount rate. Does the contractual service margin also use the new (current) discount rate?

*Answer:* No; the contractual service margin is a deferred profit, not a future cash flow that can be re-valued. The insurance finance expense on the contractual service margin uses the discount rate determined at initial recognition (paragraph B72(c)).

*Part D:* We distinguish between (i) present value of future cash flows and (ii) changes for current service:

- The claims paid of 200 in 20X1 are the expected claims, so the row labeled “Changes for Current Service” in the column “Present Value of Future Cash Flows” has an entry of 0 (shown as a dash in the exhibit).
- The risk adjustment for non-financial risk is released when the claims are paid, so the entry for the column “Risk adjustment for non-financial risk” is –40.
- The contractual service margin declines from 235.35 at initial recognition to 164.75 at the end of 20X1.

" The entry for the column “contractual service margin” is 164.75 – (235.35 + 11.77) = (82.37).
" The entry for the column “insurance contract liability” is –40 – 82.37 = (122.37).

*Question:* We included the change in the contractual service margin and the release of the risk adjustment for non-financial risk. Why did we not include the payment of the claim itself?

*Answer:* The IFRS 17 reconciliation exhibits separate the occurrence of the claim from the claim payment.

! The occurrence of the claim decreases the liability for remaining coverage and increases the liability for incurred claims by the same amount; the insurance contract liability does not change.
! The payment of the claim decreases the cash asset and decreases the insurance contract liability (which is the liability for incurred claims now).

The payment of the claim is shown in the next row of the reconciliation exhibit.

*Question:* How do we derive the contractual service margin of 164.75 at the end of 20X1?

*Answer:* We derive the contractual service margin in two steps:

Step #1: The contractual service margin at initial recognition (235.35) accretes interest to

$$235.35 + 11.77 = 247.12.$$

Step #2: The contract period is three years. The insurance services are equal each year, so the contractual service margin is allocated evenly to the three years, and 247.12 / 3 = 82.37 is allocated to 20X1 income. The remaining contractual service margin at the end of 20X1 is 247.12 – 82.37 = 164.75.

*Question:* For short term general insurance contracts, one might assume that the contractual service margin is earned equally over the contract period. But life insurance contracts have different durations until death. If the insurer issues 1,000 contracts at the beginning of 20X1, it has 1,000 contracts in 20X1, somewhat fewer in 20X2, and so one until the last policyholder dies. How do we deal with this scenario?

*Answer:* IFRS 17 explains that the insurer

> *recognises in profit or loss in each period an amount of the contractual service margin … to reflect the services provided … in that period. The amount is determined by identifying the coverage units in the group. These coverage units reflect the quantity of benefits provided under each contract in the group and its expected coverage duration. The insurer allocates the contractual service margin at the end of the period (before recognising any amounts in profit or loss) equally to each coverage unit provided in the current period and expected to be provided in the future, and recognises in profit or loss the amount allocated to the coverage units provided in the period.*

In other words: IFRS 17 requires insurers to allocate the contractual service margin as insurance services are provided. If the insurance protection is 40 in 20X1, 35 in 20X2, and 25 in 20X3, then 20X1 get 40% of the contractual service margin, and 65% is retained for 20X2 and 20X3. Insurance services include more than just insurance protection, but insurance protection is a major part.

*Insurance protection* is the GAAP term and is widely used in the insurance industry. IFRS 17 uses the term *coverage units*. Other exercises show life insurance contracts with expected deaths spread over the contract period and the contractual service margin allocated to profit or loss by the pattern of deaths.

For simplicity, this exercise assumes that all contracts continue in force for the three years. Actual application of IFRS 17 considers terminations, lapses, deaths, and new contracts added to the group.

*Question:* The method used here doesn’t allocate the contractual service margin equally to the three years, since interest is accreted to the contractual service margin each year at 5% *per annum*.

- For 20X1, the addition to profit is 82.37.
- For 20X2, the addition to profit is (164.75 × 1.05) / 2 = 86.49.
- For 20X3, the addition to profit is 86.49 × 1.05 = 90.82.

*Answer:* That is correct. IFRS 17 allows an alternative method that allocates the contractual service margin equally among the years as

$$235.35 \times 1.05 / (1 + 1 / 1.05 + 1 / 1.05^2) = 86.42.$$

This alternative method allocates the *nominal values* equally to the three years. The derivation of this method is shown in another exercise. This method is difficult to use when many claims are paid at different times.

The first method shown above allocates the contractual service margin so that the *present values* are the same in the three years. This method is simpler and matches the IFRS 17 emphasis on present values. It is used in the IFRS 17 examples, and most insurers will likely use it.

IFRS 17 says in paragraph 88:

> *… an entity shall make an accounting policy choice between:*
>
> *(a) including insurance finance income or expenses for the period in profit or loss; or*
>
> *(b) disaggregating insurance finance income or expenses for the period to include in profit or loss an amount determined by a systematic allocation of the expected total insurance finance income or expenses over the duration of the group of contracts …*

Paragraph 88(a) is the method used to solve the exercise here. Paragraph 88(b) is the alternative method that allocates the (nominal) insurance finance income or expenses systematically over the contract period.

*Part E:* The cash outflows are the claims of –200. The claim payment

- reduces the present value of future cash flows 200.
- reduces the insurance contract liability 200.

*Part F:* The closing balances are the totals of the entries in each column. The closing balance for any year is the opening balance for the next year.

- PV of future cash flows: – 355.35 + 900 + 27.23 – 200 = 371.88
- Risk adjustment: 120 – 40 = 80
- Contractual service margin: 235.35 + 11.77 – 82.37 = 164.75
- Insurance contract liability: 900 + 39 – 122.37 – 200 = 616.63

*Part G:* At year-end 20X1, no further premiums are expected, so the fulfilment cash flows = the present value of estimated claims (future cash outflows) for 20X2 and 20X3 plus the risk adjustments for non-financial risk:

- Future cash outflows: $200 / (1 + 5\%)^1 + 200 / (1 + 5\%)^2 = 371.88$
- Risk adjustment for non-financial risk: 40 + 40 = 80
- Fulfilment cash flows: 371.88 + 80 = 451.88

*Part H:* At year-end 20X2, the estimate of 20X3 claims changes to 140 and the risk adjustment for non-financial risk changes to 30.

- Future cash outflows: $140 / (1 + 5\%)^1 = 133.33$
- Risk adjustment for non-financial risk: 30
- Fulfilment cash flows: 133.33 + 30 = 163.33

The fulfilment cash flows for year-end 20X2 are used in the next exercise, but we compute it here since the method is the same as for the fulfilment cash flows for year-end 20X1.

Exercise 24.2: Insurance contracts subsequent measurement (non-onerous), continued

We continue the previous exercise and show the accounting entries for the 20X2 exhibit of the reconciliation of the insurance contract liability at the beginning and end of the year (the source of changes in the fulfilment cash flows). For each column:

A. What are the opening balances?
B. What are the insurance finance expenses?
C. What are the changes related to future services?
D. What are the changes related to current services?
E. What are the cash outflows?
F. What are the closing balances?

The completed exhibit is below, followed by explanations for the entries.

| | *Present Value of Future Cash Flows* | *Risk Adjustment For Non-financial Risk* | *Contractual Service Margin* | *Insurance Contract Liability* |
|---|---|---|---|---|
| *Opening Balance* | 371.88 | 80.00 | 164.75 | 616.63 |
| *Insurance Finance Expenses* | 18.59 | – | 8.24 | 26.83 |
| *Changes for Future Service* | (57.14) | (10.00) | 67.14 | 0.00 |
| *Changes for Current Service* | (50.00) | (40.00) | (120.06) | (210.06) |
| *Cash Outflows* | (150.00) | – | – | (150.00) |
| *Closing Balance* | 133.33 | 30.00 | 120.06 | 283.40 |

*Part A:* The opening balance for 20X2 in each column is the closing balance for 20X1:

! PV of future cash flows: – 355.35 + 900 + 27.23 – 200 = 371.88
! Risk adjustment: 120 – 40 = 80
! Contractual service margin: 235.35 + 11.77 – 82.37 = 164.75
! Insurance contract liability: 900 + 39 – 122.37 – 200 = 616.63

*Part B:* The insurance finance expense is divided among the future cash outflows, the risk adjustment for non-financial risk, and the contractual service margin.

! For the column “Present Value of Future Cash Flows,” the insurance finance expense is the opening balance × the discount rate: 371.88 × 5% = 18.59. (This formula is valid if the discount rate does not change during the year and claims are paid at the end of the year.)

! For the column “contractual service margin,” the insurance finance expense is the opening balance × the discount rate: 164.75 × 5% = 8.24.

! The risk adjustment for non-financial risk is not discounted, so it has no insurance finance expense.

! The entry for the column “insurance contract liability” is the sum of the entries in the preceding columns: 18.59 + 8.24 = 26.83

*Part C:* The changes for future services in 20X2 are

- The expected cash outflows for 20X3 are reduced from 200 to 140, for a change of –60. The present value of this change is –60 / 1.05 = (57.14), in the column "Present Value of Future Cash Flows."
- The risk adjustment for non-financial risk for 20X3 is reduced from 40 to 30 for a change of –10 in the column "risk adjustment for non-financial risk."
- The change in the contractual service margin is the negative of the changes in the two preceding columns (future cash flows and risk adjustment), since the contracts are profitable: –(–57.14 – 10) = 67.14.
- The entry for the column "insurance contract liability" is zero, since the contracts are still profitable.

*Question:* What about the difference between the actual and expected claim payment in 20X2?

*Answer:* The difference between the actual payment of 150 and the expected claim payment of 200 relates to current service, not future service.

- Changes related to current service immediately affect profit or loss.
- Changes related to future service are offset by changes to the contractual service margin (subject to a bound at zero), and are allocated to profit or loss over the current and future years of the contract period.

*Question:* The opening balance for the insurance contract liability is 616.63, even though the contracts are profitable. The contracts become more profitable with the re-estimates at December 31, 20X2. Why doesn't the insurance contract liability change?

*Answer:* The premium collected at the beginning of 20X1 causes the large insurance contract liability for 20X1. The contracts remain profitable, so the estimated change in future cash outflows or future risk adjustments at December 31, 20X2, raises the contractual service margin to offset the lower costs, with no change in the insurance contract liability.

- Changes related to future service are offset by changes in the contractual service margin and do not affect the insurance contract liability.
- Changes related to current service are not offset by changes in the contractual service margin and affect the insurance contract liability and the statement of profit or loss.

*Question:* A change related to current service is a claim paid in the current year; why does it affect the insurance contract liability?

*Answer:* A revised estimate for an incurred claim is a change related to current service and it affects the insurance contract liability for incurred claims (loss reserves in the U.S.; technical reserves in Europe). The claim payment is two transactions (the debits and credits show the double-entry book-keeping):

- occurrence of the claim, which
  - reduces the liability for remaining coverage (a debit)
  - raises the liability for incurred claims (a credit)
- payment of the claim, which
  - reduces the insurer's cash asset (a credit)
  - reduces the liability for incurred claims (a debit)

This exercise assumes the claims are paid when they occur, as is often true for life insurance. Other exercises distinguish the occurrence of the claim from the payment of the claim.

*Part D:* The changes for current service appear in the statement of profit and loss and on the statement of financial position (in the entry for the insurance contract liability):

- Actual claims costs are 150 instead of 200, for a change of –50.
- The risk adjustment for non-financial risk for 20X2 is released, for a change of –40.
- The contractual service margin at the end of 20X2, before the allocation of profit to 20X2, is

164.75 + 8.24 + 67.14 = 240.13

The contractual service margin at the end of the year, before the allocation to profit or loss, is the contractual service margin at the beginning of the year + the accretion of interest ± the changes related to future service.

The contractual service margin is the sum of the opening balance, the accretion of interest, and the reduction in future costs. This contractual service margin is allocated to 20X2 and 20X3. The exercise assumes the insurance services are provided equally each year, so half is earned in 20X2: 240.12 / 2 = 120.06.

*Part E:* The cash outflows are the claims paid of 150.

*Part F:* The closing balances are the totals in the entries in each column. The closing balance for any year is the opening balance for the next year.

- PV of future cash flows: 371.88 + 18.59 – 57.14 – 50 – 150 = 133.33
- Risk adjustment: 80 – 10 – 40 = 30.
- Contractual service margin: 164.75 + 8.24 + 67.14 – 120.06 = 120.06.
- Insurance contract liability: 616.63 + 26.83 – 210.06 – 150 = 283.40.

Exercise 24.3: Insurance contracts subsequent measurement (non-onerous), continued

We show the accounting entries for 20X3. For each column:

A. What are the opening balances?
B. What are the insurance finance expenses?
C. What are the changes related to current services?
D. What are the cash outflows?
E. What are the closing balances?

The completed exhibit (source of changes in the fulfilment cash flows) is below, followed by explanations.

| | *Present Value of Future Cash Flows* | *Risk Adjustment For Non-financial Risk* | *Contractual Service Margin* | *Insurance Contract Liability* |
|---|---|---|---|---|
| *Opening Balance* | 133.33 | 30.00 | 120.06 | 283.40 |
| *Insurance Finance Expenses* | 6.67 | – | 6.00 | 12.67 |
| *Changes for Current Service* | 0.00 | (30.00) | (126.07) | (156.07) |
| *Cash Outflows* | (140.00) | – | – | (140.00) |
| *Closing Balance* | 0.00 | 0.00 | 0.00 | 0.00 |

*Part A:* The opening balances for 20X3 are the closing balances for 20X2.

*Part B:* The insurance finance expenses are

! For PV of expected cash flows: the discount rate × the opening balance = 5% × 133.33 = 6.67.
! For the contractual service margin: the discount rate × the opening balance = 5% × 120.06 = 6.00.
! For the insurance contract liability: 6.67 + 6.00 = 12.67.

*Part C:* The contract period ends at December 31, 20X3, so no entries occur in 20X3 for future service. The changes for current service are

! The release of the risk adjustment for 20X3 claims = –30.
! The release of the CSM (after accretion for interest) = – (120.06 + 6.00) = (126.07)
! The entry for the insurance contract liability is the sum of these two items.

*Part D:* The cash outflows are the claims paid = –140, which also decrease the insurance contract liability.

*Part E:* The closing balance in each column is zero, as the insurance contracts have expired.

*Question:* If the insurance contracts are profitable, why are the closing balances zero?

*Answer:* The changes that affect the statement of profit and loss are

! Differences of actual from estimated cash flows.
! Releases of the risk adjustment for non-financial risk.
! The decreases each year in the contractual service margin reflecting the allocation of income to year.
! Changes that would cause the contractual service margin to drop below zero.

These changes affect the entries in the statement of profit or loss and the statement of financial position each year. The effects of the differences of actual from expected cash flows, release of the risk adjustment for non-financial risk, and allocation of the contractual service margin are shown in the reconciliation exhibit.

Once the contracts have expired and all claims have been paid, the cash account and the equity account on the statement of financial position have the cumulative effects, and the insurance contract liability is zero.

The previous exercises explain how the insurance contracts affect the statement of financial position and the statement of profit or loss. This exercise reconciles the statement of financial position (the balance sheet) with the statement of profit or loss (the income statement).

Exercise 24.4: Presentation of insurance contracts on financial statements (continuation of previous exercise)

IFRS 17 affects three entries on the statement of financial position:

- the cash asset = premium collected – claims paid – directly attributable acquisition expenses paid
- an insurance contract liability is set up for contracts issued or a reinsurance contract asset is set up for reinsurance contracts held
- equity = the cash asset minus the insurance contract liability or plus the reinsurance contract asset

The reinsurance contract asset for reinsurance contracts held is discussed in other exercises.

The exhibit shows the changes in balance sheet entries for cash, insurance contract liability, and equity from this group of insurance contracts; the entries (especially cash and equity) comprise other items as well.

IFRS 17 shows the statement of financial position in single-column format:

- assets are negative figures.
- liabilities are positive figures.
- equity is a positive figure.

The format here is used in the IFRS 17 *Illustrative Examples* but is not required by IFRS.

A. What are the cash assets for each year?
B. What is the insurance contract liability for each year?
C. What is the equity in each year?

*Part A:* The cash asset begins at zero, increases for premium received, and decreases for claims paid:

- 20X1: premium collected – claims paid = 900 – 200 = 700.
- 20X2: additional claims paid of 150 = 700 – 150 = 550.
- 20X3: additional claims paid of 140 = 550 – 140 = 410.

The exhibit below shows the cash asset as a negative entry for the single column format.

*Question:* Doesn't the insurer earn interest income on the cash asset? The previous exercises use present values and show the insurance finance expense as the discount rate times the starting liabilities.

*Answer:* This exercise examines only the IFRS 17 entries. The investment income on the assets backing the insurance contract liabilities is covered by IFRS 9, not IFRS 17. IFRS 17 matches insurance finance expense with interest income on the assets supporting the insurance contracts by giving insurers the option to match the income and expense in profit or loss vs other comprehensive income to eliminate accounting mismatch.

The investment income on cash balances is not the insurance finance expense, which is an implied return. An insurer may have a 5% discount rate but a higher or lower actual return on the assets held.

*Part B:* The insurance contract liability is explained in other exercises. The insurer derives the insurance contract liability at the end of the year from the liability at the beginning of the year and various adjustments. The year-end figure is carried to the statement of financial position.

*Part C:* For the statement of financial position (the balance sheet) in the single column format, assets + liabilities + equity = 0, so equity = – assets – liabilities.

*Question:* Shouldn't this be equity = + assets – liabilities?

*Answer:* The exhibit below shows assets as negative entries.

| *Statement of financial position* | *12/31/20X1* | *12/31/20X2* | *12/31/20X3* |
|---|---|---|---|
| *Cash* | (700.00) | (550.00) | (410.00) |
| *Insurance contract liability* | 616.63 | 283.40 | 0.00 |
| *Equity* | 83.37 | 266.60 | 410.00 |

IFRS 17 shows three entries for non-onerous contracts on the statement of profit and loss:

- changes for current service, stemming from
  - differences between actual and expected claims or expenses
  - release of the risk adjustment for non-financial risk
  - allocation of the contractual service margin to year of service
- insurance finance expenses, stemming from
  - the effect of the time value of money (interest accreted) on the present values of future cash flows
  - the interest accreted on the contractual service margin
- profit of loss = the changes for current service – the insurance finance expenses

| *Statement of profit and loss* | *20X1* | *20X2* | *20X3* | *Total* |
|---|---|---|---|---|
| *Changes for current service* | 122.37 | 210.06 | 156.07 | 488.50 |
| *Insurance finance expenses* | (39.00) | (26.83) | (12.67) | (78.50) |
| *Profit* | 83.37 | 183.23 | 143.40 | 410.00 |

The computation of these entries is explained in previous exercises.

The exercises below have investment components in the insurance contract, common in whole life insurance. IFRS 17 separates the insurance component and the investment component.

- Some contracts are bifurcated, with the investment component reported separately under IFRS 9 rules.
- Many contracts combine the insurance and investment components, but require separate presentation.

Of the claims payments in each year, 100 is an investment component not contingent on events covered by the insurance contract.

*Question:* What is an investment component?

*Answer:* Many life insurance policies pay benefits even if the policyholder does not die. These policies often combine insurance protection with investment vehicles that have tax benefits.

- Endowment policies pay benefits whether or not the policyholder dies. The payment received even if no death occurs is an investment component.
- Whole life insurance contracts have a policyholder account balance that is credited for premiums received (less fees for insurance protection and expenses) and increases by an interest (crediting) rate and that the policyholder receives even if the policy lapses.
- The policyholder may receive a guaranteed income of 10 *per annum* plus insurance benefits upon death.

Exercise 24.5: Reconciliation of the financial statements for insurance contracts (20X1)

The insurer forms the *20X1* reconciliation between

- the entries in the statement of financial position and
- the entries in the statement of profit or loss.

The reconciliation exhibit shows the type of liability (statement of financial position) as the columns and the type of income or expense (insurance revenue, insurance service expense, and insurance finance income or expense) as the rows. The exhibit is also called the reconciliation of the insurance contract liability, though we use this term for another reconciliation exhibit as well.

The exhibit shows columns for

- the liability for remaining coverage
- the liability for incurred claims
- the insurance contract liability

and rows for

- Opening balance
- Cash inflows
- Insurance service revenue
- Insurance service expenses
- Investment component
- Insurance finance expenses
- Cash outflows
- Closing balance

The format of the exhibit is

| | *Liability for remaining coverage* | *Liability for incurred claims* | *Insurance Contract Liability* |
|---|---|---|---|
| *Opening balance* | | | |
| *Cash inflows* | | | |
| *Insurance service revenue* | | | |
| *Insurance service expenses* | | | |
| *Investment component* | | | |
| *Insurance finance expenses* | | | |
| *Cash outflows* | | | |
| *Closing balance* | | | |

*Question:* Where is this exhibit shown in IFRS 17?

*Answer:* IFRS 17, paragraphs 98-106, requires insurers to show the reconciliation of the insurance contract liability from the beginning of the year to the end of the year and it specifies the items to be disclosed. The IFRS 17 *Illustrative Examples* provide examples of the reconciliation exhibits. The exercises here are the IFRS 17 examples with explanations of all the entries.

A. What is the insurance revenue in each column?

B. What is the insurance service expense in each column?
C. What is the investment component in each column?
D. What are the insurance finance expenses in each column?
E. What the cash outflows in each column?

The reconciliation of the statement of financial position with the statement of profit and loss for 20X1 is

| | *Liability for remaining coverage* | *Liability for incurred claims* | *Insurance Contract Liability* |
|---|---|---|---|
| *Opening balance* | – | – | – |
| *Cash inflows* | 900.00 | – | 900.00 |
| *Insurance service revenue* | (222.37) | – | (222.37) |
| *Insurance service expenses* | – | 100.00 | 100.00 |
| *Investment component* | (100.00) | 100.00 | 0.00 |
| *Insurance finance expenses* | 39.00 | – | 39.00 |
| *Cash outflows* | – | (200.00) | (200.00) |
| *Closing balance* | 616.63 | 0.00 | 616.63 |

*Part A:* The insurance revenue has three pieces:

- the expected insurance claims for the year
- the release of the risk adjustment for the year
- the allocation of the contractual service margin to profit for the year

IFRS 17 *Basis for Conclusions*, paragraph BC352, says

> *… insurance revenue … is the changes in the liability for remaining coverage in the period that relate to coverage or other services for which the entity expects to receive consideration. Those changes include insurance service expenses incurred in the period, the change in the risk adjustment for non-financial risk and the amount of the contractual service margin allocated to the period.*

Insurance revenue is the services for which the insurer *expects to receive consideration*. If the insurer expects claims of 100 in 20X1 but instead incurs claim for 200, the insurance revenue is 100 and the insurance service expense is 200.

For 20X1, these pieces are

- The expected claims for 20X1 are 200, and the investment component not contingent on insured events is 100, so the expected insurance claims = 200 – 100 = 100.
- The release of the risk adjustment for non-financial risk in 20X1 is 40.
- The allocation of the contractual service margin to profit in 20X1 is 82.37 (worked out earlier).

The sum is 100 + 40 + 82.37 = 222.37.

*Question:* Why is the entry negative in the exhibit?

*Answer:* The exhibit shows the contributions to the insurance contract liability at the end of 20X1

- Entries that increase the insurance contract liability, such as collecting premium, are positive.
- Entries that decrease the insurance contract liability, such as earning profit or releasing risk adjustments for non-financial risk, are negative.

These three entries decrease the insurance contract liability, so they are negative figures:

- 40 was released from the 20X1 risk adjustment for non-financial risk.
- 82.37 (of the 235.35 contractual service margin) was earned in 20X1.
- 100 was for insurance service expense (the contingent claims payments) in 20X1.

The sum of these pieces (100 + 40 + 82.37 = 222.37) is the decrease in the insurance contract liability.

*Question:* In 20X1, the insurer also

- used 120 to set up the risk adjustment for non-financial risk for all three years.
- set up the contractual service margin for all three years.
- set up reserves for the future claim payments (that is, the future cash outflows)

These three pieces increase the insurance contract liability. Why do we ignore these three pieces and just consider the decreases in the insurance contract liability?

*Answer:* The reserve for future claim payments + the risk adjustment for non-financial risk + the contractual service margin = the premium. We included them with the 900 premium. We reduce the insurance contract liability each year for insurance services provided, release of risk margins, and allocation of the contractual service margin to profit or loss.

IFRS 17 uses the term *insurance contract liability*, not *claim reserves* or *policy reserves*. The insurance contract liability combines claim reserves, premium reserves, and the GAAP deferred policy acquisition cost.

The exercises here assume the risk adjustment for non-financial risk is a nominal value, not a present value. The premium for insurance claims, the investment component, and profit is a present value. The premium earning interest income is 900 – 120 = 780. The interest income is 780 × 5% = 39.

The premium excluding the insurance revenue + the interest income – the investment component funds the insurance contract liability:

$$900 – 222.37 + 39 –100 = 616.63.$$

*Question:* Why are the investment components for the unpaid claims in the insurance contract liability?

*Answer:* The investment component is determined when the claim occurs, not at initial recognition. Estimating the investment component vs the insurance component of future claims is time-consuming, and IFRS 17 does not burden insurers with this task.

*Question:* The risk adjustment for non-financial risk is used when the claims are paid at the end of the year. Shouldn't the insurer earn interest income on the 120 risk adjustment as well?

*Answer:* This exercise assumes the risk adjustment for non-financial risk is not a cash flow or a cash liability needed when the claim is paid. Conceive of the risk adjustment as a guarantee of equity to guard against risk.

- The 120 risk adjustment at initial recognition is given to owners.
  - The insurer has a line of credit to use these funds to pay claims (if needed).
- The line of credit is released 40 *per annum* in 1, 2, and 3 years.
  - The insurer does not accrete interest on its line of credit.

Other models assume the risk adjustment is cash. The Atkinson and Dallas (Society of Actuaries) textbook on long duration insurance contract pricing assumes the risk-based capital charge is used at the end of the year (the balance sheet date). The insurer allocates the present value of this charge at policy inception and interest accretes during the year. The cost of capital method for the risk adjustment for non-financial risk has this perspective and conceive of the risk adjustment as

- 40 / 1.05 = 38.10 at initial recognition for the 20X1 claims

- interest income of 38.10 × 5% = 1.90 during 20X1
- release of 38.10 + 1.90 = 40.00 at year-end 20X1 when the claims are paid

IFRS 17 allows both methods of reporting the risk adjustment for non-financial risk. IFRS 17 does not say how to estimate the risk adjustment, so it does not say whether the risk adjustment is 38.10 at initial recognition and increases to 40 by the time the claims are paid or stays 40 the whole year.

IFRS 17 determines the insurance revenue by the balance sheet approach (the change in the insurance contract liability excluding certain items) and analyses insurance revenue by the income statement approach.

The balance sheet approach (paragraph B123) determines insurance revenue in three steps:

- The revenue for the year is the premium received minus the increase in the insurance contract liability (the liability for remaining coverage here). The insurer collects 900 of premium and has a liability of 616.63 at year-end, so it earns 900 – 616.63 = 283.37 during the year.

- The formula above ignores the time value of money: the premium is collected at the beginning of the year and the insurance contract liability is the value at the end of the year. IFRS 17 separates the insurance revenue from the insurance finance expense. The insurer accretes interest of 39 on the present value of future cash flows plus the contractual service margin, so it has an insurance finance expense of 39 and an insurance revenue of 283.37 + 39 = 322.37.

- The 200 claim in 20X1 is a 100 insurance claim and a 100 investment component. The insurance revenue does not include the investment component, so it is 322.37 – 100 = 222.37.

*Question:* The rows and columns of this reconciliation offset each other.

- If the discount rate were lower (say 4% instead of 5%), the insurance finance expense would be lower and but the computed insurance revenue would just offset it.
- If the investment component were lower (say 50 instead of 100), the row for investment component would be lower by 50 in each column, and the row for insurance revenue would be higher by 50.

Doesn't the investment yield affect the revenue from the insurance contract?

*Answer:* Income depends on cash inflows and cash outflows. The premium of 900 and the claim payments of 200 each year do not depend on the assumed discount rate for fulfilment cash flows or the labeling of the payments as insurance claims or as investment component. IFRS 17 separates the income into

- a contingent (insurance) part and a non-contingent investment component
- insurance revenue and insurance finance expense

The pricing of the insurance contract depends on the cash flows. The investment yield on the assets backing the insurance contract liability affect the investment cash flows, which are not shown in the IFRS 17 exhibits.

The parts of the income (insurance revenue vs insurance finance expense) is presentation. The discount rate is an accounting choice by the insurer, not the actual return on the assets. The IASB assumes investors make better decisions if they know how insurance service vs the time value of money contributes to earnings.

Other accounting systems do not distinguish insurance services from the time value of money. Not all insurers are persuaded that the benefits of the IFRS 17 exhibits outweigh the cost of preparing them.

*Question:* The discount rate reflects cash income, not just presentation. If the discount rate is 6% instead of 5%, the insurer earns more interest income on the cash it holds.

*Answer:* The investment yield on the cash backing the insurance contract liability is not reflected in the IFRS 17 entries or reconciliation exhibits. The discount rate is presentation only, not actual income. The investment

yield on the assets held by the insurer, which includes returns for financial risk, is generally greater than the discount rate for IFRS 17, which is a risk-free rate for the maturities of the insurance contracts.

- The discount rate separates the insurance income into insurance service vs insurance finance expense.
- The investment yield reflects the cash received by the insurer from investments.

IFRS 17 aligns the insurance finance expense with the yield on assets backing the insurance contract liability, with adjustments for market risk, liquidity, and maturities. The alignment is not exact, and investment income may fluctuate randomly. The reconciliation exhibits for IFRS 17 depend on the discount rate assumption, not on the actual interest income received.

Compare the module on defined benefit pension obligations. IFRS uses the pension discount rate for both assets and liabilities; GAAP uses the expected return on pension assets. To evaluate the funding status at the end of the year, both IFRS and GAAP consider the actual return on the pension assets.

*Part B:* IFRS 17 distinguishes insurance revenue from insurance service expense:

- The insurance revenue is the portion of the premium to pay the claim.
- The insurance service expense is the incurred claim (the present value of the cost to settle the claim).

The 20X1 claims here are settled for the expected amount, so the insurance service expense is also 100.

*Question:* Does insurance revenue for expected claims equal the insurance expense for the claims?

*Answer:* Insurance revenue is the premium received for the claims; insurance service expense is the incurred claims. Compare the accounting entries for 20X2 (see below), when actual claim payments are 50 less than expected claim payments.

*Part C:* The investment component in the premium is 100 and the investment portion of the claim payment (the part not contingent on insured events) is an offsetting 100.

*Question:* Why are investment components included in IFRS 17?

*Answer:* Long duration insurance contracts combine insurance protection with investment income.

Insurance claims are contingent on the occurrence of insured events, such as a death or an accident. Some parts of the claim are not contingent on the death or accident. The IASB had to decide whether to

- account for these investment components separately from accounting for the host insurance contract
- include all the payments in IFRS 17.

IFRS 17, paragraphs 11-13 and B31-35, explain when to separate investment components from the insurance contract and account for them using IFRS 9 and when to separate non-insurance service components from the host insurance contract and account for them using IFRS 15. The investment components discussed here are those that IFRS 17 does *not* remove from the insurance contract

*Question:* The sign convention here is unusual. Shouldn't income be positive and expenses be negative, as they are on the statement of profit and loss?

*Answer:* The columns of the reconciliation exhibit shows the liabilities on the statement of financial position.

- Receipt of cash before it is earned increases the liability, so it is recorded as positive.
- Payment of cash reduces the liability, so it is recorded as negative.
- Revenue decreases the liability:
  - as the insurance services are provided, the insurer earns the premium and the liability declines.
- Expenses increase the liability:

" accretion of interest on the insurance contract liability increases the amount owed to policyholders.

The signs on the reconciliation exhibit are a convention. The exhibit may be formed with all the signs reversed, showing liabilities as negative entries and assets as positive entries. But the signs must be consistent: if cash inflows are positive, cash outflows must be negative; if revenues are negative, expenses must be positive.

*Question:* The discount rate used for accounting statements does not change the payments to policyholders.

*Answer:* The discount rate is the assumed yield used to calculate the present value of the future cash outflows (the claims). If this yield is higher, the beginning reserve (insurance contract liability) is lower and the accretion of interest is greater, so the liability increases more during the year.

*Part C:* The investment component is not contingent on insured events such as deaths or accidents. The expense (payment to policyholders) equals the revenue (premium collected). The reconciliation exhibit shows

! a revenue (–100) for remaining coverage (when the premium is collected)
! an expense (100) for incurred claims (when the claims are paid)

*Question:* The investment component has an interest rate stated in the insurance contract. The policyholder may receive a 5% annual yield on money deposited with the insurer. Shouldn't we show pre-interest revenue and post-interest expense?

*Answer:* This reconciliation exhibit shows all insurance finance expenses on one line. We could separate the insurance finance expenses into parts for insurance services vs investment components, but the reconciliation exhibit becomes more complex. The IFRS 17 *Illustrative Examples* has the simpler version here.

*Part D:* The insurance finance expense is the accretion of interest on the insurance contract liability.

! The actual interest income depends on the investment yield and is not part of IFRS 17.
! The accretion of interest increases the insurance contract liability and is a positive entry on the exhibit.

Claim payments to policyholders are funded by (i) premium and (ii) accretion of interest. If the discount rate is 5%, a claim payment of 105 is funded by a 100 premium and 5 of accretion of interest. Just as the premium is a positive entry on the exhibit, the accretion of interest is a positive entry on the exhibit.

The exhibit here assumes the risk adjustment for non-financial risk is not discounted and does not accrete interest. The interest accretion is on the rest of the premium: (900 – 120) × 5% = 39.

*Part E:* The cash outflows are the claim payment of 200 on December 31, 20X1. The claim payment reduces the insurance contract liability, so it is a negative figure.

Exercise 24.6: Reconciliation of the financial statements for insurance contracts (20X2)

The insurer forms the *20X2* reconciliation between

- the entries in the statement of financial position and
- the entries in the statement of profit or loss.

The exhibit shows columns for

- the liability for remaining coverage and
- the liability for incurred claims.

Of the claims payments in each year, 100 is an investment component not contingent on events covered by the insurance contract.

A. What is the opening balance in each column?
B. What is the insurance revenue in each column?
C. What is the insurance service expense in each column?
D. What is the investment component in each column?
E. What are the insurance finance expenses in each column?
F. What the cash outflows in each column?
G. What is the closing balance in each column?

Reconciliation between statement of financial position and statement of profit and loss for 20X2

| | *Liability for remaining coverage* | *Liability for incurred claims* | *Insurance Contract Liability* |
|---|---|---|---|
| *Opening Balance* | 616.63 | – | 616.63 |
| *Insurance revenue* | (260.06) | – | (260.06) |
| *Insurance service expenses* | – | 50.00 | 50.00 |
| *Investment component* | (100.00) | 100.00 | 0.00 |
| *Insurance Finance Expenses* | 26.83 | – | 26.83 |
| *Cash Outflows* | – | (150.00) | (150.00) |
| *Closing Balance* | 283.40 | 0.00 | 283.40 |

*Part A:* The opening balances for 20X2 are the closing balances for 20X1. This exercise assumes claims are paid when they occur, so the closing balance for the column “liability for incurred claims” is zero in all years.

If claims are paid later then they occur (as for general insurance), the closing balance is not zero and the opening balance for the next year is not zero. The insurance finance expenses would be split between the liability for remaining coverage and the liability for incurred claims.

The opening balance for the column “liability for remaining coverage” is the closing balance of 616.63 from 20X1, and is also the entry for the column “insurance contract liability.”

*Part B:* The insurance revenue may be viewed two ways: from the change in the insurance contract liability excluding the non-insurance pieces (determination of insurance revenue) or from the revenue of the insurance pieces (analysis of insurance revenue).

- Total revenue is the change in the insurance contract liability: 616.63 – 283.40 = 333.23.

- We remove the portion for the investment component: 333.23 – 100 = 233.23.
- We remove the insurance finance expense: 233.23 – (–26.83) = 260.06.

Note the signs of each revenue or expense:

- The reduction in the liability implies that the insurer earns revenue of 333.23.
- Part of the *reduction* of the liability is the payment of the *investment* component, which is removed.
- Part of the *increase* in the liability is the insurance finance expense; when we remove this increase, the reduction in the liability is greater.

The insurance revenue has four pieces:

- The reduction of the insurance claim from 100 to 50 is revenue of 100 – 50 = 50.
- The payment of the insurance claim of 50 means that 50 of deferred revenue is now earned.
- The release of the risk adjustment of 40 is revenue of 40.
- The movement of 120.06270 from the contractual service margin to profit is revenue of 120.06270.

The sum of these pieces is 50 + 50 + 40 + 120.06 = 260.06

The first two bullet points above may be stated as "the premium for this claim is 100, so revenue is 100." The insurance revenue is the claim payment expected to be compensated by premium.

*Question:* The premium was the present value of 100, or $100 / 1.05^2 = 90.70$, not the full 100.

*Answer:* The premium is received two years before the claim occurs. The accumulated premium (its present value when the claim occurs) is 100.

*Question:* The claim was estimated as 200 and is paid for 150 (not 100 and 50).

*Answer:* The investment component of the claim is 100, which is separately reported.

*Question:* The claim is paid for 50; shouldn't this be an expense, not a revenue?

*Answer:* The occurrence of a claim for the expected amount causes

- a reduction in the liability for remaining coverage (an insurance revenue)
- an increase in the liability for incurred claims (an insurance service expense)

For many life insurance contracts, the claim payment equals the expected claim amount, so the increase in the liability for incurred claims offsets the reduction in the liability for remaining coverage.

GAAP and IFRS 17 have different revenues and expenses.

- GAAP shows revenue as premiums + investment income and expenses as claims + other expenses.
- IFRS 17 insurance revenue and insurance service expenses are worked out in these exercises.

For long duration contracts, GAAP shows revenue and expense earlier than IFRS 17 does.

*Part C:* The insurance service expense is the insurance part of the claim payments. The total claim payments = 150, of which 100 is the investment component and 50 is insurance protection.

The paragraph above is simple but not exact. The expense is the occurrence of the claim, not the payment:

> *The insurance service expense is the insurance part of the incurred claim. The total incurred claim is 150, of which 100 is the investment component and 50 is insurance protection.*

The payment of the claim (both insurance component and investment component) is the second to last row, “cash outflows.” The cash outflows do not distinguish insurance vs investment components.

*Part D:* The investment component is 100 revenue (the premium collected is earned) and 100 expense (the liability has accrued). IFRS 17 does not refer to unearned premium, though the *Basis for Conclusions* speaks of unearned revenue. We might say that investment services are provided, so the revenue is recognized.

*Part E:* If the discount rate does not change, the insurance finance expense = the discount rate × (the present value of future cash flows at January 1, 20X2 + the contractual service margin at January 1, 20X2) =

$$5\% \times (371.88 + 164.75) = 26.83$$

The insurance finance expense in this exercise relates entirely to the liability for remaining coverage. Claims are paid directly after they occur, so no insurance finance expense accrues on the liability for incurred claims.

*Part F:* The cash outflow is –150 in the column “liability for incurred claims.”

The premium collection and claim payment sequence has four pieces. Suppose an insurer collects 100 on January 1 for a one-year contract and pays a claim for 100 for December 31. For simplicity, assume the discount rate is zero, acquisition expenses are zero, and the risk adjustment for non-financial risk is zero.

- On January 1, the insurer collects premium of 100, which is unearned, so the insurance contract liability increases 100 (a deferred revenue). For IFRS 17, premium is not revenue, so it is not earned, unearned, or deferred. But these terms are familiar to actuaries, so we use them here.
- During the year, the insurer
  - earns the 100 of insurance revenue and
  - accrues the 100 of insurance service expense. The insurance contract liability remains 100.
- On December 31, the insurer pays the claim for 100 and the insurance contract liability becomes zero.

Discount rates, risk adjustments, contractual service margins, and random fluctuations cause real scenarios to be complex, but the pattern of “collect cash, earn the cash, accrue the liability, pay the liability” remains.

*Part G:* The closing balance in each column is the sum of the entries in that column in the rows above.

The liability for remaining coverage = 616.63 – 260.06 – 100 + 26.83 = 283.40.

The liability for incurred claims has opening and closing balances of zero, so the insurance contract liability also has a 283.40 closing balance.

Exercise 24.7: Reconciliation of the financial statements for insurance contracts (20X3)

The insurer forms the *20X3* reconciliation between

- the entries in the statement of financial position and
- the entries in the statement of profit or loss.

The exhibit shows columns for

- the liability for remaining coverage and
- the liability for incurred claims.

Of the claims payments in each year, 100 is an investment component not contingent on events covered by the insurance contract.

A. What is the opening balance in each column?
B. What is the insurance revenue in each column?
C. What is the insurance service expense in each column?
D. What is the investment component in each column?
E. What are the insurance finance expenses in each column?
F. What the cash outflows in each column?
G. What is the closing balance in each column?

Reconciliation of the statement of financial position with the statement of profit and loss for 20X3 is

| | *Liability for remaining coverage* | *Liability for incurred claims* | *Insurance Contract Liability* |
|---|---|---|---|
| *Opening Balance* | 283.40 | – | 283.40 |
| *Insurance revenue* | (196.07) | – | (196.07) |
| *Insurance service expenses* | – | 40.00 | 40.00 |
| *Investment component* | (100.00) | 100.00 | 0.00 |
| *Insurance Finance Expenses* | 12.67 | – | 12.67 |
| *Cash Outflows* | – | (140.00) | (140.00) |
| *Closing Balance* | 0.00 | 0.00 | 0.00 |

*Part A:* The opening balances for 20X3 are the closing balances for 20X2. This exercise assumes claims are paid when they occur, so the closing balance for the column “liability for incurred claims” is zero in all years.

The opening balance for the column “liability for remaining coverage” is the closing balance of 283.39603 from 20X2, and is also the entry for the column “insurance contract liability.”

*Part B:* The insurance revenue may be viewed two ways: from the change in the insurance contract liability excluding the non-insurance pieces or from the revenue of the insurance pieces.

- Total revenue is the change in the insurance contract liability: 283.40 – 0 = 283.40.
- We remove the portion for the investment component: 283.40 – 100 = 183.40.
- We remove the insurance finance expense: 183.40 – (–12.67) = 196.07.

Note the signs of each revenue or expense:

- The reduction in the liability implies that the insurer earned revenue of 183.40.
- Part of the reduction of the liability is the payment of the investment component, which is removed.
- Part of the *increase* in the liability is the insurance finance expense; when we remove this increase, the reduction in the liability is greater.

The revenue of the insurance pieces has three pieces:

- The payment of the insurance claim of 40 means that 40 of deferred revenue is now earned.
- The release of the risk adjustment of 30 is revenue of 30.
- The movement of 126.07 from the contractual service margin to profit is revenue of 126.07.

The sum of these three pieces is 40 + 30 + 126.07 = 196.07.

*Part C:* The insurance service expense is the cost of the insurance part of the claim payments in 20X3. The total claim payments = 140, of which 100 is the investment component and 40 is insurance services.

*Part D:* The investment component is 100 revenue (the premium collected is now earned) and 100 expense (the liability has accrued).

*Part E:* The insurance finance expense is the discount rate × (the present value of future cash flows at December 31, 20X2, plus the contractual service margin at December 31, 20X2) =

$$5\% \times (133.33 + 120.06) = 12.67.$$

The insurance finance expense relates entirely to the liability for remaining coverage. Claims are paid directly after they occur, so no insurance finance expense accrues on the liability for incurred claims.

*Part F:* The cash outflow is –150 in the column "liability for incurred claims."

*Part G:* The closing balance in each column is the sum of the entries for that column in the rows above.

The liability for remaining coverage = 616.63 – 260.06 – 100 + 26.83 = 283.40.

The liability for incurred claims has opening and closing balances of zero, so the insurance contract liability also has a 283.40 closing balance.