

## Financial accounting module 22: Revenue and Expense

(The attached PDF file has better formatting.)

Financial accounting module 22: Revenue and Expense . . . . .	1
Insurance revenue vs investment components . . . . .	1
Bank deposits and insurance premiums . . . . .	2
Measuring income and expense for insurance contracts . . . . .	2
Income statement vs balance sheet approaches . . . . .	2
Depreciation expense . . . . .	3
Income from financial assets . . . . .	3
Revenue, expenses, and cash flows . . . . .	4
Determining vs analyzing insurance revenue . . . . .	5
Release of the risk adjustment for non-financial risk . . . . .	6
Accounting income vs economic income . . . . .	6
Progression of the contractual service margin . . . . .	7
Illustration: Two year coverage period . . . . .	8
Sign convention . . . . .	10
Insurance revenue vs insurance service expense . . . . .	10
Illustration: insurance revenue vs service expense . . . . .	11
Investment components and insurance revenue or expense . . . . .	13
Transaction-based taxes . . . . .	13
Insurance acquisition cash flows . . . . .	14
Liability for incurred claims . . . . .	14
Changes to the liability for incurred claims . . . . .	15
Experience adjustments . . . . .	16
Insurance revenue for onerous contracts . . . . .	17
Becoming onerous after initial recognition . . . . .	19
Insurance finance income or expense . . . . .	19
Change in the discount rate . . . . .	20
Insurance revenue and service expense for onerous contracts . . . . .	21
Onerous contracts and differences between expected and actual claim payments . . . . .	23
Cash inflows and outflows . . . . .	24
Pricing of insurance contracts . . . . .	25
Insurance service result vs net financial result . . . . .	25

This discussion forum posting explains revenue and expense for IFRS 17. Insurance revenue, insurance service expense, insurance finance expense, insurance acquisition cash flows, and the contractual service margin are tested on the final exam. The sections on the income statement approach and the balance sheet approach repeat material from earlier modules of this course and apply it to insurance contracts. You are not responsible for the sections on investment components, transaction-based taxes, or the net financial result, which are included here for completeness, or for the end-notes (which cite the text of IFRS 17).

### *INSURANCE REVENUE VS INVESTMENT COMPONENTS*

For most non-financial firms, sales are revenue, though the timing of the revenue differs for goods vs services.

- A good sold for 100 has revenue of 100 when the good is sold.
- A service contract that costs 100 has revenue of 100 when the services are provided.

Accounting systems used before IFRS 17 reported insurance premium as revenue. For U.S. GAAP, premium is recognized as revenue

- when the premium is due for long duration contracts, such as life insurance and annuities
- as insurance protection is provided for short duration contracts, such as motor and property insurance

The International Accounting Standards Board (IASB) criticized the recognition of insurance revenue for long duration insurance contracts in pre-IFRS 17 accounting systems for two reasons:

- Insurance revenue was recognized on a cash basis (when premium was due), not an accrual basis.
- Deposits that are repaid to policyholders even if no insured event occurs were recognized as revenue.<sup>1</sup>

IFRS 17 recognizes insurance revenue when the insurance services are provided:

- when claims occur (for future cash flows and the risk adjustment for non-financial risk)
- in proportion to the coverage units and the passage of time (for acquisition expenses and the contractual service margin).

We explain how to compute insurance revenue: how some insurance premium is similar to bank deposits, how insurance revenue is determined differently from the revenue of other firms, and how IFRS 17 analyzes insurance revenue.

#### *Bank deposits and insurance premiums*

Banks receive deposits from consumers and hold or manage the money.

- The deposit into the account is not revenue for the bank, since the depositor still owns the money. The revenue for the bank is the fees it earns for managing the money and the investment income it earns on the money it holds.
- The depositor's withdrawal of the money in the account is not an expense for the bank. The expenses for the bank are its costs of providing the banking services and the crediting rate on depositors' balances.

Life insurers collect premiums from policyholders, deduct charges for acquisition costs and other expenses, hold the rest of the money in the policyholder's account balance, and return the money when the policyholder dies or withdraws money from the account balance. The money that is paid to policyholders even if the insured event (the death) does not occur is an investment component; it is not insurance revenue or insurance service expense. Investment components include endowment benefits and account balances.<sup>2</sup>

Investment components are of two types.

- An investment component that is not interrelated with the insurance components is separated from the insurance contract and is covered by IFRS 9 (financial investments).
- An investment component that is highly interrelated with the insurance components is not separated from the insurance contract and is covered by IFRS 17.

#### *MEASURING INCOME AND EXPENSE FOR INSURANCE CONTRACTS*

The IFRS 17 measurement of income and expense for insurance contracts differs from the measurement of revenue and expense for other contracts with consumers, which are covered by IFRS 15.

Revenue and expense can be determined by an income statement approach or a balance sheet approach. The IFRS term for the income statement is the statement of profit or loss and the IFRS term for the balance sheet is the statement of financial position, but the GAAP terms (income statement and balance sheet) are still used for the measurement methods.<sup>3</sup>

### *Income statement vs balance sheet approaches*

- The income statement approach
  - first allocates revenue or expense by year
  - then derives the carrying value on the balance sheet at the end of the year as the carrying value at the beginning of the year plus the revenue during the year or minus the expense during the year.
- The balance sheet approach
  - first determines the balance sheet carrying values at the beginning and end of the year
  - then derives the revenue or expense as the change in the balance sheet carrying values from the beginning to the end of the year.

We illustrate the income statement and balance sheet approaches for expense and revenue:

- for *expenses* of fixed assets by depreciated cost vs fair value
- for *revenue* of financial assets by amortized value vs fair value through profit or loss<sup>4</sup>

#### *Depreciation expense*

The purchase price of a fixed asset is charged to expense over its estimated useful life two ways:

*Income statement approach:* A depreciation schedule allocates the purchase price over the estimated useful life of the asset to determine the depreciation expense on the statement of profit or loss. The carrying value of the asset on the statement of financial position is the purchase price minus the accumulated depreciation.

*Illustration:* A fixed asset bought for 100 on January 1, 20X1, has an estimated useful life of five years. Using straight line depreciation:

- the expense in the statement of profit or loss for each of the next five years is  $100 / 5 = 20$
- the carrying value on the statement of financial position is
  - $100 - 20 = 80$  on December 31, 20X1
  - $80 - 20 = 60$  on December 31, 20X2
  - $60 - 20 = 40$  on December 31, 20X3
  - $40 - 20 = 20$  on December 31, 20X4
  - $20 - 20 = 0$  on December 31, 20X5

*Balance sheet approach:* The firm re-estimates the carrying value of the asset at each valuation date on the statement of financial position. The change in the carrying value from the beginning to the end of the year is the depreciation expense on the statement of profit or loss.

*Illustration:* Equipment is bought for 100 on January 1, 20X1, and it is re-valued at 75 on December 31, 20X1, and at 55 on December 31, 20X2. The expense on the statement of profit or loss is  $75 - 100 = -25$  in 20X1 and  $55 - 75 = -20$  in 20X2.<sup>5</sup>

#### *Income from financial assets*

The income from a bond that is bought at a price not equal to its maturity value is reported as revenue one of two ways. (For simplicity, we illustrate with a zero coupon bond; for an annual coupon bond, the interest received is also revenue.)

*Income statement approach:* An amortization schedule allocates the difference between the purchase price of a zero-coupon bond and its maturity value over the life of the bond to derive the amortization of premium or the accrual of discount on the income statement (statement of profit or loss). The carrying value of the bond on the balance sheet (statement of financial position) at the end of the year is the carrying value at the beginning of the year minus the amortization of premium or plus the accrual of discount during the year.

*Illustration:* A three year zero-coupon bond with a par value of 100 is bought for 83.96 on December 31, 20X0. The yield to maturity is  $(100 / 83.96)^{(1/3)} - 1 = 6.00\%$ .

- The income is
  - $83.96 \times 6\% = 5.04$  in 20X1
  - $83.96 \times 1.06 \times 6\% = 5.34$  in 20X2
  - $83.96 \times 1.06^2 \times 6\% = 5.66$  in 20X3.
- The carrying value on the statement of financial position is
  - $83.96 + 5.04 = 89.00$  on December 31, 20X1
  - $89.00 + 5.34 = 94.34$  on December 31, 20X2
  - $94.34 + 5.66 = 100.00$  on December 31, 20X3.

*Balance sheet approach:* The market value of the bond at each valuation date is the carrying value on the balance sheet (statement of financial position). The income from the bond shown on the statement of financial performance is the coupon payments plus the change in the carrying value.<sup>6</sup>

*Illustration:* A three year zero-coupon bond with a par value of 100 is bought for 83.96 on December 31, 20X0. The market value of the bond is 90 at December 31, 20X1, and 94 at December 31, 20X2.

- The market value is the carrying value of the bond on the statement of financial position.
- The bond income is
  - $90 - 83.96 = 6.04$  in 20X1
  - $94 - 90 = 4.00$  in 20X2
  - $100 - 94 = 6.00$  in 20X3.

IFRS uses the income statement approach for most non-insurance contracts and the balance sheet approach for insurance contracts. IFRS 17, *Basis for Conclusions*, paragraph BC29 contrasts IFRS 15 (Revenue from contracts with customers) and IFRS 17 (insurance contracts):

*(a) IFRS 15 establishes the amount of revenue to be recognised each period and adjusts the contract asset or contract liability at the start of the period by the amount of revenue recognised to measure the contract asset or contract liability at the end of the period; and*

*(b) IFRS 17 ... establishes the carrying amount of the asset or liability ... at the start and end of the reporting period. The amount of insurance revenue presented is determined by reference to these two measurements.*

*Illustration:* A contract begins on January 1, 20X1, with an initial value of zero and payments by consumers of 150 each year.

- IFRS 15 determines the revenue each year, such as 100 for 20X1, 80 for 20X2, and 240 for 20X3, and derives the carrying value as
  - $150 - 100 = 50$  at year-end 20X1
  - $50 + 150 - 80 = 120$  at year-end 20X2
  - $120 + 150 - 240 = 30$  at year-end 20X3
- IFRS 17 determines the carrying value each year, such as 50, 120, and 30 for the year-end 20X1, 20X2, 20X3 dates, and derives the revenue (shown as a negative entry) each year as the change in the carrying value over the year minus the net cash inflow from policyholders
  - $(50 - 0) - 150 = -100$  for 20X1
  - $(120 - 50) - 150 = -80$  for 20X2
  - $(30 - 120) - 150 = -240$  for 20X3.

*Revenue, expenses, and cash flows*

An insurer's transactions with its policyholders are cash flows and insurance contracts, which are promises of future cash flows. For cash accounting systems, cash inflows are revenue and cash outflows are expenses. An insurer's insurance contract liability to its policyholders increases with cash inflows (revenue) from these policyholders and decreases with cash outflows (expenses) to these policyholders. This simple accounting does not show how to measure the profits or losses from the insurance contracts; we use it to highlight the contrast with the IFRS 17 treatment of cash flows and income flows.

The IFRS 17 income flows (revenue and expenses) differ from the insurer's cash flows:

- Insurance revenue is reported when insurance services are provided, not when the premium is received.
- Claim expense is reported when the claim occurs, not when it is paid.
- Acquisition expenses is reported by an allocation of acquisition cash flows over the coverage period.
- The profit in the insurance contracts is recognized in proportion to the insurance services provided, not the insurer's cash flows.
- The insurance finance income or expense is not the investment income on the financial assets held by the insurer, unless the payments to policyholders depend on the returns on specified pools of assets.

Income flows (profit or loss) and cash flows both affect the carrying value of the insurance contract liability on the statement of financial position (the balance sheet).

- A cash inflow to the firm (premium received) raises the insurance contract liability and the cash assets by equal amounts but does not affect the statement of profit or loss. Revenue is recognized as insurance services are provided (as claims occur or the risk adjustment for non-financial risk is released), not when the premium is received.
- A cash outflow from the firm (claims paid and acquisition cash flows paid) reduces the insurance contract liability and the cash assets by equal amounts but does not affect the statement of profit or loss. The claim expense is recognized when the claim occurs, not when the claim is paid; acquisition expenses are amortized and recognized over the coverage period, not when the acquisition cash flows are paid.
- The profit from the insurance contracts, which is the net present value of the cash flows, is recognized over the coverage period in proportion to the insurance services provided (the coverage units), not by the pattern of cash flows. The amortized profit reduces the insurance contract liability.
- The accretion of interest for the time value of money and the effect of changes in the discount rate are expenses, not cash flows. (The cash flows from the receipt of investment income on the financial assets backing the insurance contract liabilities is not covered by IFRS 17. It is reported separately from the insurance finance expense.) The non-cash insurance finance expense increases the insurance contract liability.

#### *Determining vs analyzing insurance revenue*

IFRS 17 distinguishes between determining and analyzing insurance revenue. It uses

- the balance sheet approach to *determine* insurance revenue and to determine insurance finance expense on the present value of future cash flows
- the income statement approach to *analyze* insurance revenue and to determine the accretion of interest (insurance finance expense) on the contractual service margin

Insurance revenue is the change in the liability for remaining coverage from the beginning to the end of the year, with several adjustments:<sup>7</sup>

- Claim payments that do not depend on the occurrence of an insured event are investment components, which are not insurance revenue or insurance service expense.
- Changes in the liability from the time value of money (accretion of interest) or changes in the discount rate are insurance finance income or expense, not insurance revenue or insurance service expense.

- Changes in the liability for which the insurer does not expect to receive compensation (onerous contract losses) are not insurance revenue, though they are insurance service expenses.
- Insurance acquisition cash flows that are directly attributable to the portfolio of insurance contracts are amortized and allocated as insurance revenue and insurance service expense over the coverage period; the fulfilment cash flows use the acquisition cash flows, not the amortized acquisition expenses.
- Transaction-based taxes collected for tax authorities (such as premium taxes and value added taxes) are not insurance revenue or insurance service expense.

Most insurance revenue is also insurance service expense (and vice versa), with several exceptions:

- The allocation of the contractual service margin (the unearned revenue, deferred revenue, or unearned profit) is insurance revenue but not insurance service expense.
- The release of the risk adjustment for non-financial risk when a claim occurs is insurance revenue but not insurance service expense.
- Claims (and other expenses) for which the insurer does not expect to receive compensation are losses on onerous contracts and are insurance service expense but not insurance revenue.
- Changes in the liability for remaining coverage affect insurance revenue and insurance service expense when the claims occur. Changes in the liability for incurred claims are insurance service expense only and are recognized immediately in profit or loss.

Revenue from insurance contracts (insurance revenue) is recognized as insurance services are provided. The insurance revenue has four parts:<sup>8</sup>

- the expected claims and claim adjusting expenses
- the amortization of acquisition cash flows
- the release of the risk adjustment for non-financial risk
- the unearned profit in the insurance contract before the insurance services are provided

#### *Release of the risk adjustment for non-financial risk*

Life insurance claim payments are not uncertain once the death occurs, so the risk adjustment for non-financial risk is released when the claim occurs. Some general insurance claims may not be reported until well after the claim occurs, and the insurer retains the risk adjustment for non-financial risk in the insurance contract liability, but both the claim and the associated risk adjustment for non-financial risk move from the liability for remaining coverage to the liability for incurred claims. For the analysis of insurance revenue, the release of the risk adjustment for non-financial risk is the release from the liability for remaining coverage when the claim occurs. This release matches the decrease in the liability for remaining coverage when the claim occurs for the elimination of the risk adjustment for non-financial risk. Decreases in the risk adjustment for non-financial risk in the liability for incurred claims as the claims are reported, investigated, and paid are re-estimates, not releases, and do not affect insurance revenue. The analysis of insurance revenue shows no releases of the risk adjustment for non-financial risk for claims that occurred in past years, just as the determination of insurance revenue does not consider the change in the liability for incurred claims.

#### *Accounting income vs economic income*

IFRS 17 shows accounting income, not economic income. The IFRS 17 general measurement model is not a fair value model, since estimates of future claims and risk adjustments for non-financial risk depend on the insurer's perspective, not the perspective of market participants.

Economic income is the income if all assets and liabilities are measured at fair value and the cost of holding capital (including payments to tax authorities and investors) is treated as an expense. IFRS 17 shows pre-tax revenue and expense, so payments to tax authorities are not deducted from the insurance service result (the insurance revenue minus the insurance service expense). IFRS 17 treats payments to investors (shareholders or other owners) as profit, not as expenses.

Although IFRS 17 is not a fair value model, market variables, such as discount rates, must be consistent with market values, and non-market variables, such as estimated claim values, must be current and unbiased. Claim values may not have provisions for adverse deviation and they are re-estimated each valuation date.

The relation of accounting profits to economic profits depends on the relation of the risk adjustment for non-financial risk and to the cost of holding capital. The relation is clearest at initial recognition, when non-onerous contracts generate accounting profits, and onerous contracts generate accounting losses.

- IFRS 17 does not consider the cost of holding capital as an expense, so an insurance contract that generates an accounting profit may cause an economic loss if the cost of holding capital is subtracted.
- The IFRS 17 risk adjustment for non-financial risk may exceed the cost of holding capital, so even an onerous contract at initial recognition may generate economic profits.

If the risk adjustment for non-financial risk is determined by the cost of capital method, onerous vs non-onerous contracts at initial recognition are equivalent to economically unprofitable vs profitable contracts.

The release of the risk adjustment for non-financial risk when the claims occur is insurance revenue. If the risk adjustment for non-financial risk exceeds the cost of holding capital, IFRS 17 accounting profits when the claims occur exceed economic profits.

*Illustration:* An insurance contract at initial recognition has present value of future cash flows of -10 and a risk adjustment for non-financial risk of 15. The present value of the cost of holding capital for this insurance contract is 10. The insurance contract is adequately priced, with economic income of  $10 - 10 = \text{zero}$ . At initial recognition the contract is onerous, with fulfilment cash flows of  $-10 + 15 = 5$ . The insurer reports a loss in the statement of profit or loss of 5, and it shows a loss component of the liability for remaining coverage of 5. When the claim is settled and the risk adjustment for non-financial risk is released, the loss reported at initial recognition is reversed, and the rest of the release of the risk adjustment for non-financial risk is insurance revenue of  $15 - 5 = 10$ .

Even if the risk adjustment for non-financial risk is computed as the cost of holding capital, accounting income still differs from economic income in timing and permanence.

- *Timing:* Economic income recognizes future profits at initial recognition, when the business transactions occur; accounting income recognizes future profits when they are earned. Accounting income holds the unearned profit (the contractual service margin) as part of the insurance contract liability.
- *Permanence:* Economic income considers the cost of holding capital as an expense paid to tax authorities and to investors over the coverage period and the claim settlement period. Accounting income considers the release of the risk adjustment for non-financial risk as insurance revenue (profit) when the claim occurs and does not consider payments to tax authorities and investors.

#### *Progression of the contractual service margin*

At initial recognition, the contractual service margin is the unearned profit in the insurance contracts. As time progresses and more is known about the future payments to policyholders and claimants, the contractual service margin is adjusted up or down. Each year, the contractual service margin accretes interest, and part of the adjusted and accumulated contractual service margin is allocated to profit or loss, in proportion to the insurance services provided.

The illustrations below clarify the progression of the contractual service margin over the coverage period.

*Illustration:* An insurer writes a one-year policy on December 31, 20X1, and expects to

- receive on December 31, 20X1, premium of 250
- incur and pay on December 31, 20X2, a claim for 200

The discount rate for this insurance contract is 6% *per annum*. For simplicity, the acquisition cash flows and the risk adjustment for non-financial risk are zero.

The illustration assumes the insurer uses the general measurement model for this insurance contract, not the premium allocation approach.

This illustration uses a policy effective date of December 31, 20X1, to distinguish the accounting entries at initial recognition from the accounting entries during the coverage period of calendar year 20X2.

We compute the fulfilment cash flows, the contractual service margin, and the insurance contract liability:

- The fulfilment cash flows at initial recognition are  $-250 + 200 / 1.06 = -61.32$ .
- The contractual service margin at initial recognition is  $-(-61.32) = 61.32$ .
- The fulfilment cash flows after the premium is received are  $200 / 1.06 = 188.68$ .
- The insurance contract liability at the following valuation dates is
  - December 31, 20X0 (a year before the insurance contract is issued): 0
  - December 31, 20X1:  $188.68 + 61.32 = 250.00$
  - December 31, 20X2 (after the claim occurs and is paid): 0

The premium cash inflow and the insurance finance expense affect the insurance revenue:

- The cash inflow from the premium received in 20X1 is 250, and the insurance finance expense is zero.
- The insurance finance expense in 20X2 is
  - on the present value of future cash flows:  $200 \times (1.06^0 - 1.06^{-1}) = 11.32$ .
  - on the contractual service margin:  $61.32 \times 6\% = 3.68$ .

The insurance contract liability at December 31, 20X2, right before the claim is paid is

$$200 \times 1.06^0 + 61.32 + 3.68 = 265.00.$$

The insurance revenue is the change in the insurance contract liability minus the premium cash inflow and minus the insurance finance expense:

- 20X1:  $(250 - 0) - 250 - 0 = 0$
- 20X2:  $(0 - 250) - 0 - 11.32 - 3.68 = -265.00$  (a negative entry is revenue)

The insurance revenue is analyzed as the incurred claims (the insurance service expense) plus the allocation of the contractual service margin to profit or loss plus the release of the risk adjustment for non-financial risk plus the allocated acquisition expenses. In this illustration, the risk adjustment for non-financial risk is zero and the acquisition cash flows are zero. The coverage period is calendar year 20X2, so the entire contractual service margin plus the accretion of interest is allocated to profit or loss in 20X2:  $61.32 + 3.68 = 65.00$ . The incurred claims (the insurance service expense) plus the allocated contractual service margin by year are

- 20X1:  $0 + 0 = 0$
- 20X2:  $200 + 65 = 265$ . (To conform with the balance sheet approach, we will show this entry as -265.)

The insurance revenue may also be evaluated as the premium accumulated for the time value of money:<sup>9</sup>  $250 \times 1.06 = 265.00$ .

*Illustration: Two year coverage period*

We show a two-year coverage period with the claim paid two years after the premium is received. An insurer writes a two-year policy on December 31, 20X1, and expects to

- receive on December 31, 20X1, premium of 250
- incur and pay on December 31, 20X3, a claim for 200

The discount rate for this insurance contract is 6% *per annum*. For simplicity, the acquisition cash flows and the risk adjustment for non-financial risk are zero. The coverage units are the same in 20X2 and 20X3.<sup>10</sup>

We compute the fulfilment cash flows, the contractual service margin, and the insurance contract liability:

- The fulfilment cash flows are
  - at initial recognition:  $-250 + 200 / 1.06^2 = -72.00$
  - at December 31, 20X1, after the premium is received:  $200 / 1.06^2 = 178.00$
  - at December 31, 20X2:  $200 / 1.06 = 188.68$ .
  - at December 31, 20X3, after the claim occurs and is paid: zero.
- The contractual service margin at initial recognition is  $-(-72.00) = 72.00$ 
  - The accretion of interest on the contractual service margin in 20X2 is  $72 \times 6\% = 4.32$ .
  - The contractual service margin at December 31, 20X2, before the allocation to profit or loss is  $72 + 4.32 = 76.32$ .
  - The coverage units are the same in 20X2 and 20X3, so the contractual service margin allocated to profit or loss in 20X2 is  $\frac{1}{2} \times 76.32 = 38.16$ .
- The contractual service margin remaining at December 31, 20X2, after the allocation to profit or loss is  $76.32 - 38.16 = 38.16$ .
  - The accretion of interest on the contractual service margin in 20X3 is  $38.16 \times 6\% = 2.29$ .
  - The contractual service margin at December 31, 20X2, before the allocation to profit or loss is  $38.16 + 2.29 = 40.45$ .
  - The contractual service margin allocated to profit or loss in 20X2 is 40.45.
- The insurance contract liability at the following valuation dates is
  - December 31, 20X0 (before the insurance contract is issued): 0
  - December 31, 20X1:  $178 + 72 = 250.00$
  - December 31, 20X2:  $188.68 + 38.16 = 226.84$
  - December 31, 20X3 (after the claim occurs and is paid): 0

The premium cash inflow and the insurance finance expense affect the insurance revenue:

- The cash inflow from the premium received in 20X1 is 250.
- The insurance finance expense in 20X2 is
  - on the present value of future cash flows:  $200 \times (1.06^{-1} - 1.06^{-2}) = 10.68$ .
  - on the contractual service margin:  $72 \times 6\% = 4.32$
- The insurance finance expense in 20X3 is
  - on the present value of future cash flows:  $200 \times (1.06^0 - 1.06^{-1}) = 11.32$ .
  - on the contractual service margin:  $38.16 \times 6\% = 2.29$ .

The insurance revenue is the change in the insurance contract liability minus the premium cash inflow and minus the insurance finance expense:

- 20X1:  $(250 - 0) - 250 - 0 = 0$
- 20X2:  $(226.84 - 250) - 0 - 10.68 - 4.32 = -38.16$  (a negative entry is revenue)
- 20X3:  $(0 - 226.84) - 0 - 11.32 - 2.29 = -240.45$  (a negative entry is revenue)

The insurance revenue is analyzed as the incurred claims plus the allocation of the contractual service margin to profit or loss plus the release of the risk adjustment for non-financial risk plus the allocated acquisition expenses. In this illustration, the risk adjustment for non-financial risk is zero and the acquisition cash flows are zero. The incurred claims plus the allocated contractual service margin by year are

- 20X1:  $0 + 0 = 0$

- 20X2:  $0 + -38.16 = -38.16$ .
- 20X3:  $-200 + -40.45 = -240.45$ .

The total insurance revenue for all years, accumulated for the time value of money, is  $-38.16 \times 1.06 + -240.45 = -280.90$ . The total insurance revenue is the premium accumulated for the time value of money:  $250 \times 1.06^2 = 280.90$ .

The illustrations above are for non-onerous contracts with no acquisition cash flows and no risk adjustments for non-financial risk.

### *Sign convention*

The signs of the insurance revenue and insurance service expense depend on the accounting conventions.

- Some accountants refer to the revenue above as +200 and the expense as -200, with
  - assets and revenue as positive entries
  - liabilities and expenses as negative entries.
- The reconciliation exhibits in the IFRS 17 *Illustrative Examples* show
  - assets and revenue as negative entries
  - liabilities and expenses as positive entries.

We follow the sign convention in the IFRS 17 *Illustrative Examples*. We often refer to insurance revenue as a positive figure (such as 240.45) but show a negative entry (such as -240.45).

### *Insurance revenue vs insurance service expense*

Insurance revenue is recognized as insurance services are provided, not as the premium is received. But insurance revenue is the claims for which the insurer expects to receive consideration (that is, premium) + the unearned profit in the premium + the release of the risk adjustment for non-financial risk (which is not paid to policyholders or claimants but is part of the premium), so insurance revenue is the premium (accumulated for the time value of money and changes in discount rates), not the actual incurred claims.

Insurance revenue differs for IFRS 17 vs other insurance accounting systems in timing and present value:

- *Timing*: Other accounting systems recognize insurance revenue as premium is received (or is due). IFRS 17 recognizes insurance revenue as the claims occur and as the unearned profit in the premium (the contractual service margin) is allocated to profit or loss as insurance services are provided.
- *Present value*: Other accounting systems value insurance revenue as the cash flow when the premium is received (or is due). IFRS 17 values insurance revenue as the premium accumulated for the time value of money and other insurance finance expense (such as changes in the current discount rate) from the time the premium is received to the time the claims occur.

The incurred claims are also insurance service expense. But insurance revenue differs from insurance service expense several ways:

- *Expected vs actual*: insurance revenue is the expected amount of the claim; insurance service expense is the actual incurred claim.
- *Onerous contracts*: insurance revenue is the amount for which the insurer expects to receive premium (consideration), not the losses on onerous contracts; insurance service expense is the total claim.
- *Profit*: insurance revenue includes the profit in the premium (the contractual service margin); insurance service expense is only the incurred claims.
- *Risk adjustment for non-financial risk*: insurance revenue includes the release of the risk adjustment for non-financial risk; insurance service expense is only the amounts owed to policyholders or claimants.

- *Insurance contract liability*: insurance revenue affects the liability for remaining coverage; insurance service expense for incurred claims affects the liability for incurred claims.

*Illustration: insurance revenue vs service expense*

The following illustration shows the difference between insurance revenue and insurance service expense.

*Illustration*: An insurer writes a one-year medical malpractice contract on January 1, 20X1, which it measures by the general measurement model, not the premium allocation approach. This contract is the only contract in its group, so the coverage period is calendar year 20X1.

- Premium of 100 is received on January 1, 20X1.
- Claims of 110 are expected to occur in 20X1 and be paid on December 31, 20X5.
- The discount rate is 6% *per annum*.
- The risk adjustment for non-financial risk is 15.

On December 31, 20X1, the actual claims that occur in 20X1 are expected to be paid for 140 on December 31, 20X5, and the risk adjustment for non-financial risk is increased to 25.

- The fulfilment cash flows at initial recognition are  $-100 + 110 / 1.06^5 + 15 = -2.80$ .
- The contractual service margin at initial recognition is 2.80.
- The liability for remaining coverage at initial recognition is  $-2.80 + 2.80 = 0$ .

The insurance finance expense in 20X1 is  $110 \times (1.06^{-4} - 1.06^{-5}) = 4.93$  on the present value of future cash (or  $6\% \times 110 \times 1.06^{-5} = 4.93$ ) and  $6\% \times 2.80 = 0.17$  on the contractual service margin (accretion of interest). The total insurance finance expense is  $4.93 + 0.17 = 5.10$ .

The contractual service margin allocated to profit or loss in 20X1 is  $2.80 + 0.17 = 2.97$ .

The insurance revenue for 20X1 is determined as

$$\begin{aligned}
 & \text{the change in the liability for remaining coverage} \\
 - & \text{the cash inflow for the premium received} \\
 - & \text{the (total) insurance finance expense} \\
 = & (0 - 0) - 100 - 4.93 - 0.17 = -105.10.
 \end{aligned}$$

Insurance revenue is shown as a negative entry (the sign convention in the IFRS 17 *Illustrative Examples*) since it reduces the insurance contract liability.

The liability for remaining coverage starts at zero (before initial recognition) and ends at zero (at the end of the coverage period), so the change in the liability for remaining coverage is  $0 - 0$ .

The insurance revenue for 20X1 is analyzed as

$$\begin{aligned}
 & \text{the expected value (at the beginning of the year) of the present value of the incurred claims at the end of the year} \\
 + & \text{the release of the risk adjustment for non-financial risk for the incurred claim} \\
 + & \text{the allocation of the contractual service margin to profit or loss for 20X1} \\
 = & 110 \times 1.06^{-4} + 15 + 2.80 \times 1.06 = 105.10
 \end{aligned}$$

The insurance revenue is the premium received accumulated for interest:

- the time value of money and changes in the current discount rate on the present value of future cash flow
- the time value of money on the contractual service margin.

In this illustration, the risk adjustment for non-financial risk does not accrete interest, so the premium received accumulated for interest is  $100 + (100 - 15) \times 6\% = 105.10$ .

The incurred claims are the present value at the end of the year for the claims expected at initial recognition.

- The actual incurred claim has a nominal value of 140 and a present value of  $140 \times 1.06^{-4} = 110.89$ , which determines the insurance service expense under the liability for incurred claims.
- The incurred claim expected at initial recognition (for which the insurer expects to receive consideration) has a nominal value of 110 and a present value of  $110 \times 1.06^{-4} = 87.13$ , which determines the insurance revenue under the liability for remaining coverage.

The treatment of the risk adjustment for non-financial risk is analogous:

- The release of the risk adjustment for non-financial risk when the claim occurs is 15, which affects the insurance revenue under the liability for remaining coverage.
- The new risk adjustment for non-financial risk for the incurred claim is 25, which affects the insurance service expense under the liability for incurred claims.

The insurance service expense for 20X1 under the liability for incurred claims is  $140 \times 1.06^{-4} + 25 = 135.89$ , which is recognized immediately in profit or loss (not spread over the claim settlement period).

The profit or loss for 20X1 from insurance services is  $105.10 - 135.89 = -30.79$ , with profit shown as a positive entry and loss shown as a negative entry.<sup>11</sup> This loss is

$$\begin{aligned}
 & \text{the present value of the increase in the claim estimate, or } (140 - 110) / 1.06^4 = 23.76 \\
 + & \text{ the change in the risk adjustment for non-financial risk, or } 25 - 15 = 10 \\
 - & \text{ the contractual service margin allocated to profit or loss: } 2.80 \times 1.06 = 2.97 \\
 = & 23.76 + 10 - 2.97 = 30.79
 \end{aligned}$$

The profit or loss includes also the insurance finance expense on the present value of future cash flows and on the contractual service margin and the investment income on the financial assets backing the insurance liabilities. The investment income is covered by IFRS 9, not IFRS 17, and this illustration does not show the investment yield on the assets. The insurance finance expense is 4.93 on the present value of future cash flows and 0.17 on the contractual service margin, so the total loss for 20X1 in the statement of profit or loss from insurance services and insurance finance expense is  $30.79 + 4.93 + 0.17 = 35.89$ .

The insurance finance expense is offset by insurance revenue:

- Insurance revenue is determined as the change in the liability for remaining coverage minus the insurance finance expense (both the insurance finance expense on the present value of future cash flows and the accretion of interest on the contractual service margin).
- Insurance revenue is analyzed as the present value of the incurred claims (for which the insurer expects to receive consideration) plus the release of the risk adjustment for non-financial risk plus the allocation of the contractual service margin to profit or loss. The present value of the incurred claims is at the date the claim occurs, so this present value includes the insurance finance expense from the date the premium is received to the date the claim occurs. The risk adjustment for non-financial risk is released when the claim occurs, so it also includes (if it accretes interest) any insurance finance expense from the date the premium is received to the date the claim occurs. The contractual service margin allocated to profit or loss includes accretion of interest from the date the premium is received to the date that it is allocated to profit or loss.

If the current discount rate changes, the insurance finance expense on the present value of future cash flows and the insurance revenue change by offsetting amounts:

If the current discount rate changes from 6% on January 1, 20X1, to 7% on December 31, 20X1, the insurance finance expense on the present value of future cash flows is  $110 \times (1.07^4 - 1.06^5) = 1.72$ , or a decrease of  $4.93 - 1.72 = 3.21$ . Insurance revenue is determined by subtracting 1.72 instead of 4.93 from the change in the liability for remaining coverage (which remains  $0 - 0 = 0$ ) so the change in the insurance revenue offsets the change in the insurance finance expense. The present value of the incurred claim in the analysis of insurance revenue is  $110 \times 1.07^{-4} = 83.92$  instead of  $110 \times 1.06^{-4} = 87.13$ , so the change in the insurance revenue is  $110 \times (1.07^{-4} - 1.06^{-4}) = -3.21$ .

#### *Investment components and insurance revenue or expense*

We add an investment component to the illustration. A cash flow that does not depend on the occurrence of an insured event is an investment component. If it is highly inter-related with the insurance components, it is accounted for under IFRS 17, not IFRS 9, but it is not part of insurance revenue or insurance service expense.<sup>12</sup>

An insurer writes a one-year policy on December 31, 20X1, and expects to

- receive on December 31, 20X1, premium of 250
- incur and pay on December 31, 20X2, a claim for 200

The discount rate for this insurance contract is 6% *per annum*. For simplicity, the acquisition cash flows and the risk adjustment for non-financial risk are zero. The claim payment has an investment component:

- 120 depends on the occurrence of an insured event, such as the death of the policyholder.
- 80 does not depend on the occurrence of an insured event, such as an endowment benefit or the increase in the account balance on a whole life insurance contract that can be withdrawn by the policyholder.

A previous illustration shows that the 20X2 insurance revenue is 265 and the 20X2 insurance service expense is 200. If the investment component is 80, the 20X2 insurance revenue is  $265 - 80 = 185$  and the insurance service expense is  $200 - 80 = 120$ .

#### *Transaction-based taxes*

Many firms collect transaction-based taxes (such as sales taxes) and remit them to governments.<sup>13</sup> Premium taxes are transaction-based taxes; in much of Western Europe, the premium tax on insurance contracts is from 9% to 24%. Value added taxes and excise taxes are also transaction-based taxes (based on sales or other exchanges), not corporate income taxes that depend on net income.

Premium taxes, value added taxes, and other transaction-based taxes affect the fulfilment cash flows and the insurance contract liability, but they are not part of insurance revenue and insurance service expense.<sup>14</sup>

*Illustration:* An insurer writes a two-year policy on December 31, 20X1, and expects to

- receive on December 31, 20X1, premium of 250
- incur and pay on December 31, 20X3, a claim for 200
- pay 10% of the premium received to the government on January 1, 20X2.

The discount rate for this insurance contract is 6% *per annum*. The fulfilment cash flows are

- at initial recognition is  $200 / 1.06^2 + 10\% \times 250 - 250 = (47.00)$ .

- after the premium is received is  $200 / 1.06^2 + 10\% \times 250 = 203.00$ .
- after the premium tax is paid is  $200 / 1.06^2 = 178.00$ .

The decrease in the liability from December 31, 20X1 (203.00) to January 1, 20X2 (178.00) of -25 is not insurance revenue or insurance service expense. The insurer collects the money on behalf of the government, and it is not included in its own revenue or expense.<sup>15</sup>

### *Insurance acquisition cash flows*

Insurance acquisition cash flows, once they are paid, are no longer included in the fulfilment cash flows or the liability for remaining coverage. The acquisition cash flows are not included directly in insurance revenue and insurance service expense. They are allocated over the contract period and amortized to the valuation dates for inclusion in insurance revenue and insurance service expense of each year.

*Illustration:* An insurer writes a two-year policy on December 31, 20X1, and expects to

- receive on December 31, 20X1, premium of 250
- pay on December 31, 20X1, acquisition cash flows of 40
- incur and pay on December 31, 20X3, a claim for 200

The discount rate for this insurance contract is 6% *per annum*. The insurance contract liability

- before premium is received and acquisition cash flows are paid =  $-250 + 200 / 1.06^2 + 40 = -32.00$
- after premium is received but before acquisition cash flows are paid =  $200 / 1.06^2 + 40 = 218.00$
- after premium is received and acquisition cash flows are paid =  $200 / 1.06^2 = 178.00$

The decrease of  $178.00 - 218.00 = -40$  of the insurance contract liability for the acquisition cash flows is not insurance revenue or insurance service expense. Instead, the 40 of acquisition cash flows are amortized and allocated over the contract period. The discussion forum posting on acquisition cash flows explains how to amortize and allocate the acquisition cash flows. The illustrations with acquisition cash flows show how to derive the insurance revenue and insurance service expenses.

Acquisition cash flows are insurance revenue and insurance service expense for both GAAP and IFRS 17.

- Cash accounting shows the revenue and expense when the cash is paid or received.
- GAAP sets up a deferred policy acquisition cost asset to match the acquisition costs to the premium.
- IFRS 17 re-allocates the acquisition cash flows over the contract period to match the passage of time.

Some acquisition cash flows, such as agents' commissions, are paid when the premium is received, since the agent may remit to the insurer only the premium minus the commission. Other acquisition cash flows, such as underwriting costs for new business, are paid before the premium is received. The premium is amortized for insurance finance expense and included in insurance revenue as the insurance services are provided. The acquisition cash flows are amortized and systematically allocated to insurance revenue and insurance service expense over the contract period.<sup>16</sup>

### *Liability for incurred claims*

When a claim occurs, the liability for remaining coverage decreases and the liability for incurred claims increases. The occurrence of a claim for its expected value does not change the insurance contract liability.

- The liability for remaining coverage is a liability for future services (future claims).
- The liability for incurred claims is a liability for current services (current and past claims).

Insurance revenue is the change in the liability for remaining coverage (adjusted as noted earlier):

- Insurance revenue occurs over the contract period. Once the contract period ends, the insurance revenue is the premium collected (accumulated for the time value of money) for the claims and related expenses.
- Insurance service expense extends through the claim settlement period and does not depend on the premium collected. Experience adjustments (differences between claim payments and expected claims) affect insurance service expenses but not insurance revenue.

#### *Changes to the liability for incurred claims*

Once a claim occurs, changes in the liability for incurred claims are of several types:

- Changes stemming from the time value of money are insurance finance expense.
- Payment of a claim for its expected value are not revenue or expense.
- Payment of a claim for more or less than its expected value is insurance service expense.
- Changes in (the present value of) expected claim payments are insurance service expense.

*Illustration:* An insurer writes a one-year policy on December 31, 20X0, and expects to

- receive on December 31, 20X0, premium of 250
- incur a claim on December 31, 20X1
- pay the claim for 200 on December 31, 20X2

The discount rate for this insurance contract is 6% *per annum*. The fulfilment cash flows

- at initial recognition are  $200 / 1.06^2 - 250 = (72.00)$
- after the premium is received are  $200 / 1.06^2 = 178.00$

We compute the contractual service margin and the insurance contract liability:

- The contractual service margin at initial recognition is the negative of the fulfilment cash flows, or 72.00.
- The insurance contract liability is  $178 + 72 = 250$  after the premium is received.
  - Before the claim occurs, the insurer has a liability for remaining coverage.
  - After the claim occurs but before it is paid, the insurer has a liability for incurred claims.

At December 31, 20X1, when the claim occurs:

- the fulfilment cash flows are  $200 / 1.06^1 = 188.68$ .
- the insurance finance expense in 20X1 on the future cash flows is  $188.68 - 178.00 = 10.68$
- since the discount rate has not changed, this equals  $6\% \times 178.00 = 10.68$
- the insurance finance expense in 20X1 on the contractual service margin is  $6\% \times 72.00 = 4.32$

The profit from the insurance contract, accumulated for the time value of money, is earned over the coverage period, which is 20X1 here:

- the contractual service margin before allocation to profit or loss is  $72.00 + 4.32 = 76.32$
- the coverage period ends on December 31, 20X1, so the entire contractual service margin of 76.32 is allocated to profit or loss for 20X1

The occurrence of the claim (insurance service expense) is offset by the premium covering the claim cost, accumulated to the date the claim occurs (insurance revenue).

- the claim occurs for a present value of 188.68, which is insurance service expense of 188.68
- the claim is compensated by the premium received, so the insurance revenue is also 188.68
- the insurance revenue in 20X1 is  $76.32 + 188.68 = 265.00$
- the insurance revenue = the premium adjusted for the time value of money:  $250 \times 1.06 = 265.00$

### *Experience adjustments*

An experience adjustment is the occurrence of a claim for other than its expected amount.<sup>17</sup> The claim in this illustration is paid when it occurs, as is common for life insurance claims. General insurance claims may be reported well after they occur and may be paid well after they are reported.

- When the claim occurs, an experience adjustment relates to current service.
- Changes to estimates of incurred claims relate to past service.

We consider several scenarios for 20X2.

*Scenario #1:* the claim is paid for its expected value on December 31, 20X2:

- the insurance finance expense for 20X2 is  $200 - 200 / 1.06^1 = 11.32$
- the discount rate has not changed, so this is also  $188.68 \times 6\% = 11.32$
- the coverage period has ended and the contractual service margin is zero, so nothing from the contractual service margin is allocated to 20X2 profit or loss
- the payment of a claim for its expected value is a decrease in the cash asset and an offsetting decrease in the liability for incurred claims, not insurance revenue or insurance service expense

*Scenario #2:* the claim is paid for more or less than its expected value on December 31, 20X2:

- the insurance finance expense for 20X2 is  $200 - 200 / 1.06^1 = 11.32$
- the discount rate has not changed, so this is also  $188.68 \times 6\% = 11.32$
- the coverage period has ended and the contractual service margin is zero, so nothing from the contractual service margin is allocated to 20X2 profit or loss
- if the claim is paid for 350, the insurance service expense is  $350 - 200 = 150$ 
  - this insurance service expense is recognized (as a loss) in profit or loss for 20X2
  - the insurance revenue is zero, since the change in the payment is not compensated by premium
- if the claim is paid for 50, the insurance service expense is  $50 - 200 = -150$  (a contra-expense)
  - this insurance service contra-expense is recognized (as profit) in profit or loss for 20X2
  - the insurance revenue is zero, since the change in the payment is not compensated by premium

Whether the claim is ultimately paid for 50 or 350, the insurance revenue for this policy is 265, which is the accumulated value of the premium. Actual claim payments that differ from expected claim payments are experience adjustments that affect insurance service expense, not insurance revenue.<sup>18</sup>

*Scenario #3:* when the claim occurs in 20X1, it is re-estimated at 350 and paid for 350 on December 31, 20X2:

- the liability for incurred claims after the re-estimate is  $350 / 1.06^1 = 330.19$ 
  - the liability for remaining coverage is zero
- the present value of the claim is re-estimated from 188.68 to 330.19, so the insurance service expense for the re-estimate of the claim is  $330.19 - 188.68 = 141.51$ 
  - the claim already occurred, so the re-estimate does not affect insurance revenue or the contractual service margin
- the insurance finance expense for 20X2 is  $350 - 350 / 1.06^1 = 19.81$
- the discount rate has not changed, so this is also  $330.19 \times 6\% = 19.81$

The total insurance service expense + insurance finance expense for the two years is

$$178.00 + 10.68 + 141.51 + 19.81 = 350.00$$

The coverage period ended in 20X1, so the contractual service margin is zero in 20X2, and nothing from the contractual service margin is allocated to 20X2 profit or loss. The claim is paid for 350, so the insurance service expense when the claim is paid for its expected value is  $350 - 350 = 0$ .

*Scenario #4:* when the claim occurs in 20X1, it is re-estimated at 50 and paid for 50 on December 31, 20X2:

- the liability for incurred claims after the re-estimate is  $50 / 1.06^1 = 47.17$ 
  - the liability for remaining coverage is zero
- the present value of the claim is re-estimated from 188.68 to 47.17, so the insurance service expense for the re-estimate is  $47.17 - 188.68 = (141.51)$ 
  - the negative expense is recognized as profit in the 20X1 statement of profit or loss
  - the claim already occurred, so the re-estimate does not affect insurance revenue or the contractual service margin
- the insurance finance expense for 20X2 is  $50 - 50 / 1.06^1 = 2.83$
- the discount rate has not changed, so this is also  $47.17 \times 6\% = 2.83$

The total insurance service expense + insurance finance expense for the two years is

$$178.00 + 10.68 + (-141.51) + 2.83 = 50.00$$

The coverage period ended in 20X1, so the contractual service margin is zero in 20X2, and nothing from the contractual service margin is allocated to 20X2 profit or loss. The claim is paid for 50, so the insurance service expense when the claim is paid for its expected value is  $50 - 50 = 0$ .

*Summary:*

- Changes to estimates of claims that have *not yet occurred* affect the liability for remaining coverage and the contractual service margin, so they affect also the insurance revenue from allocation of the contractual service margin to profit or loss.
- Changes to estimates of claims that *have already occurred* affect the liability for incurred claims, not the contractual service margin. They affect insurance service expense but not insurance revenue. They are recognized immediately in the statement of profit or loss.

*Insurance revenue for onerous contracts*

If a contract is onerous, the insurer is not compensated for the entire claim and related expenses. The first illustration below has a discount rate of zero (for simplicity); more realistic illustrations are shown later.

*Illustration:* An insurer writes a two-year policy on December 31, 20X0, and expects to

- receive on December 31, 20X0, premium of 250
- incur and pay on December 31, 20X2, a claim for 300

The discount rate for this insurance contract is 0% *per annum*.

The insurer expects a loss of  $300 - 250 = 50$  on this policy. The loss of 50 is recognized at initial recognition (in the 20X0 statement of profit or loss), with no offsetting insurance revenue. When the claim occurs for 300 in 20X2, the accounting entries are

- insurance revenue: -250 under the liability for remaining coverage excluding the loss component, which is the portion of the incurred claim for which the insurer expects to receive consideration.
- insurance service expense: -50 under the loss component of the liability for remaining coverage
  - the negative expense of -50 is a reversal of the expense of 50 recognized at initial recognition and is reported as profit in the statement of profit or loss

- insurance service expense: 300 under the liability for incurred claims
- cash outflow: -300 under the liability for incurred claims

The loss of 50 is recognized in profit or loss at initial recognition, since the insurance contract is onerous. The accounting entries when the claim occurs offset each other and have zero net effect on profit or loss:

<i>Value</i>	<i>Type of Entry</i>	<i>Type of Liability</i>
-250	insurance revenue	liability for remaining coverage
-50	reversal of onerous loss	liability for remaining coverage
300	incurred claim	liability for incurred claims

The cash outflow of 300 reduces the cash assets and reduces the liability for incurred claims, with no net effect on the statement of financial position.

Re-estimates of claims that have not yet occurred have several forms:

- Changes that make an onerous insurance contract more onerous are recognized as insurance service expense when the change occurs.
- Reversals of losses on onerous contracts are recognized as a reduction in the insurance service expense.
- Changes that cause a non-onerous contract to become onerous are divided into two parts:
  - The increase in the present value of the claims increases the fulfilment cash flows and decreases the contractual service margin until the contractual service margin becomes zero, causing no direct net effect on profit or loss. Indirectly, profit or loss decreases, since the allocation of the contractual service margin to profit or loss is reduced to zero.
  - The rest of the increase in the present value of the claims is an insurance service expense for an onerous contract, which is recognized immediately in profit or loss.
- Changes that cause an onerous contract to become non-onerous are divided into two parts:
  - The decrease in the present value of the claims decreases the fulfilment cash flows and decreases the loss component of the liability for remaining coverage until it becomes zero. The reversal of the loss on the onerous contract is an insurance service contra-expense, which is recognized immediately as profit in the statement of profit or loss.<sup>19</sup>
  - The rest of the decrease in the present value of the claims creates a contractual service margin that offsets the rest of the decrease in the fulfilment cash flows, with no direct effect on profit or loss, since the contractual service margin is still unearned. Indirectly, profit or loss increases as the contractual service margin is allocated to profit or loss in proportion to insurance services provided.

Insurance service expense for contracts that become onerous (or more onerous) and reversals of insurance service expense for contracts that become non-onerous (or less onerous) are recognized immediately in the statement of profit or loss.

For the illustration, suppose the claim is re-estimated on December 31, 20X1:

- If the revised estimate is 320, the increase of 20 is an insurance service expense in 20X1.
  - The 20X1 statement of profit or loss shows a loss of 20.
- If the revised estimate is 280, the decrease of 20 is a reversal of a loss on an onerous contract that reduces the insurance service expense in 20X1 by 20.
  - The 20X1 statement of profit or loss shows a profit (a contra-loss) of 20.
- If the revised estimate is 220, the decrease of 80 is split into two parts:
  - the first 50 is a reversal of a loss on an onerous contract that reduces the insurance service expense in 20X1 by 50.
  - the next 30 creates a contractual service margin of 30 that offsets 30 of the reduced expected claim.
  - The 20X1 statement of profit or loss shows a profit (a contra-loss) of 50.

### *Becoming onerous after initial recognition*

Contracts may become onerous after initial recognition. For simplicity, we continue with the zero discount rate.

*Illustration:* An insurer writes a two-year policy on December 31, 20X0, and expects to

- receive on December 31, 20X0, premium of 250
- incur and pay on December 31, 20X2, a claim for 200

The discount rate for this insurance contract is 0% *per annum*. The insurer revises the claim estimate to 280 on December 31, 20X1.

At initial recognition, the insurer has a contractual service margin of  $250 - 200 = 50$ . The increase in the claim estimate of  $280 - 200 = 80$  on December 31, 20X1, is divided into two parts:

- The first 50 reduces the contractual service margin to zero.
- The next 30 is recognized as insurance service expense in the 20X1 statement of profit or loss.

If the discount rate is positive, the computations in the illustration above use the present values of the claim to determine fulfilment cash flows, contractual service margins, onerous contracts, insurance service expense, and insurance revenue. The difference between the present value of the claim and its ultimate value when it is paid is insurance finance expense.

### *Insurance finance income or expense*

Insurance finance income or expense is computed by the balance sheet approach or by the income statement approach. If the current discount rate does not change and does not vary by the maturity of the cash flows, the two methods give same income or expense.

*Illustration:* A claim with a nominal value of  $C$  will be paid  $n$  years after the beginning of the year (time  $t=0$ ). The discount rate at time  $t$  is  $r_t$ . The insurance finance expense for the first year is

- balance sheet approach:  $C \times ((1+r_1)^{-(n-1)} - (1+r_0)^{-n})$
- income statement approach:  $r_0 \times C \times (1+r_0)^{-n}$

If  $r_0 = r_1$ , the two expressions above for the insurance finance expense are equal.

For all years combined, the two methods give the same the total insurance finance income or expense. The choice of method affects the allocation of insurance finance income or expense by year.

The insurance finance expense on the present value of future cash flows in the fulfilment cash flows uses the balance sheet approach, with the current discount rate for each balance sheet date. Some other accounting systems lock in the discount rate at initial recognition and use the income statement approach.

If the discount rate changes during the year, the insurer makes an accounting policy choice whether

- to recognize all insurance finance expense in profit or loss
- to dis-aggregate insurance finance expense between profit or loss and other comprehensive income.<sup>20</sup>

If the payments to policyholders are cash flows that do not vary based on the returns on any underlying assets (as is true for the illustrations in this section), and the insurer chooses to dis-aggregate the insurance finance expense between profit or loss and other comprehensive income, the insurance finance expense recognized in profit or loss uses the income statement approach. The insurance finance expense in other comprehensive

income is the difference between the balance sheet approach and the income statement approach. The two approaches gives the same insurance finance expense for all years combined, so the other comprehensive income for years combined is zero.

The insurance finance expense on the contractual service margin is the accretion of interest at the discount rate determined at initial recognition (the income statement approach). The contractual service margin is the unearned profit at initial recognition, so it is amortized into profit or loss over the coverage period, with no part going to other comprehensive income for changes in the discount rate.

Some illustrations here assume that the discount rates do not vary with the maturity of the cash flows or from year to year. For simplicity, they may show the income statement approach (accretion of interest) even for the insurance finance income or expense on the present value of future cash flows.

#### *Change in the discount rate*

*Illustration:* An insurer writes a two-year policy on December 31, 20X0, and expects to

- receive on December 31, 20X0, premium of 250
- incur and pay on December 31, 20X2, a claim for 200

The discount rate is 6% *per annum* at initial recognition and 5% *per annum* on December 31, 20X1.

The fulfilment cash flows at initial recognition are  $-250 + 200 \times 1.06^{-2} = -72.00$ , so the contractual service margin at initial recognition is 72.00. The insurance finance expense in 20X1 is

- on the present value of future cash flows: the difference in the present values at the beginning and end of the year is  $200 \times 1.05^{-1} - 200 \times 1.06^{-2} = 200 \times (1.05^{-1} - 1.06^{-2}) = 12.48$
- on the contractual service margin: the accretion of interest during the year is  $72.00 \times 6\% = 4.32$ , and the contractual service margin after the accretion of interest is  $72 + 4.32 = 76.32$ .

The two computations above are the balance sheet approach and the income statement approach:

- *Balance sheet approach:* The insurance finance expense for the present value of future cash flows first determines the carrying values at the beginning and end of the year and then computes the difference between them.
- *Income statement approach:* The insurance finance expense for the contractual service margin first computes the discount rate times the carrying value at the beginning of the year and then derives the carrying value at the end of the year.

Changes in the estimates of claims that have already occurred relate to past service or current service and are recognized immediately in profit or loss. For claims that have not yet occurred (the liability for remaining coverage), we distinguish changes related to future service from changes related to current service.<sup>21</sup>

- Changes in the estimated claim payment relate to future service and affect both the fulfilment cash flows and the contractual service margin. Changes in the estimated claim payment may be
  - Re-estimates of the mortality rate (for life insurance) or of claim frequency (for general insurance)
  - Re-estimates of the size of the claim
  - Changes in the crediting rate based on the insurer's exercise of discretion<sup>22</sup>
- Changes in the discount rate used to derive the present value of the estimated claim payment relate to current service (even though the claims to which the discount rates apply may occur in the future), not to future service. They affect the fulfilment cash flows but not the contractual service margin.

The income or expense for the time value of money is

- insurance finance expense for cash outflows: claims and acquisition cash flows on primary insurance contracts and premiums on reinsurance contracts held.
- insurance finance income for cash inflows: premiums on primary insurance contracts and reinsurance recoverables on reinsurance contracts held.

*Illustration:* Suppose the discount rate is 6% *per annum* and an insurer on December 31, 20X0, expects to

- receive on December 31, 20X1, premium with a present value of 250
- pay on December 31, 20X2, a claim with a present value of 200

Both the premium and the claim will be paid in future years, so the insurer reports in profit or loss

- on December 31, 20X1
  - insurance finance income of  $250 \times 6\% = 15.00$
  - insurance finance expense of  $200 \times 6\% = 12.00$
- on December 31, 20X2
  - insurance finance expense of  $200 \times 1.06 \times 6\% = 12.72$

Insurance finance expense applies whether the claims have not yet occurred or the claims have occurred but not yet been paid, but the expense is presented in different liabilities:

- if the claim has not yet occurred, the insurance finance expense is in the liability for remaining coverage.
- if the claim has already occurred, the insurance finance expense is in the liability for incurred claims.

For simplicity, some illustrations show all premium paid at initial recognition. In practice, whole life insurance contracts often have annual premiums and annual acquisition cash flows. Some commercial health insurance and general insurance contracts have quarterly or monthly premiums.

#### *Insurance revenue and service expense for onerous contracts*

Insurance revenue has four parts:

- The premium funding claims and expenses, recognized when the claims or expenses occur (not when the premium is received or is due) and accumulated for the time value of money
- An allocation of the contractual service margin (the expected unearned profit at initial recognition) to each year of the coverage period.
- The release of the risk adjustment for non-financial risk, recognized when the claims occur.
- The amortization of acquisition cash flows, allocated over the coverage period.

Insurance service expense has the following parts:

- The present value of claims and expenses, recognized when the claims or expenses occur.
- Losses on onerous (unprofitable) contracts, recognized when the contracts become onerous.
- The amortization of acquisition cash flows, allocated over the coverage period.
- Changes in the present value of incurred claims, recognized when the changes occur.
- Experience adjustments (differences between actual claim payments and expected values), recognized when the claim is paid.

Changes in the estimates of claims that have not yet occurred cause offsetting changes in the fulfilment cash flows and the contractual service margin if the changes

- *decrease* the fulfilment cash flows and *increase* the contractual service margin an offsetting amount, with no insurance service expense and no immediate recognition of profit or loss, if the contracts are not onerous (and therefore remain non-onerous when the fulfilment cash flows decrease).<sup>23</sup>

- *increase* the fulfilment cash flows and *decrease* the contractual service margin an offsetting amount, with no insurance service expense and no immediate recognition of profit or loss, if the contracts are not onerous and do not become onerous even with the greater fulfilment cash flows.

The illustrations below show how non-onerous and onerous contracts affect the contractual service margin.

*Illustration:* An insurer writes a two-year policy on December 31, 20X0, and expects to

- receive on December 31, 20X1, premium of 250
- pay on December 31, 20X2, a claim for 200

The discount rate for this insurance contract is 6% *per annum*. The coverage units (the insurance services provided) are the same in 20X1 and 20X2.

- The insurance finance income on the premium cash inflow in 20X1 is  $-250 \times (1.06^0 - 1.06^{-1}) = -14.15$ .
- The insurance finance expense on the claim cash outflow is
  - 20X1:  $200 \times (1.06^{-1} - 1.06^{-2}) = 10.68$
  - 20X2:  $200 \times (1.06^0 - 1.06^{-1}) = 11.32$

Income is shown here as a negative entry; expense is shown as a positive entry.

- At initial recognition, the expected profit from this insurance contract is  $250 / 1.06^1 - 200 / 1.06^2 = 57.85$ .
  - The contractual service margin at initial recognition is 57.85.
- The accretion of interest on the contractual service margin (expected profit) in 20X1 is  $57.85 \times 6\% = 3.47$ .
  - The insurance finance expense on the contractual service margin in 20X1 is 3.47.
  - The contractual service margin before the allocation to profit or loss on December 31, 20X1, is  $57.85 \times 1.06 = 61.32$ .
- The coverage period is two years, and the coverage units are the same in 20X1 and 20X2, so the profit allocated to 20X1 *insurance revenue* is  $61.32 / 2 = 30.66$ .
  - No insurance service expense is reported for 20X1.
  - The contractual service margin remaining at the beginning of 20X2 is  $61.32 - 30.66 = 30.66$ .
- The remaining contractual service margin accumulates by December 31, 20X2, to  $30.66 \times 1.06 = 32.50$ .
  - The insurance contracts mature in 20X2, so the profit allocated to 20X2 *insurance revenue* is 32.50.
  - No insurance service expense matches this insurance revenue (same as in 20X1).
- The incurred claim of 200 on December 31, 20X2, is 20X2 *insurance service expense*.
  - The incurred claim is funded by the premium, so the insurer recognizes 200 of *insurance revenue* on December 31, 20X2, as well.

The insurance revenue for all years combined is the premium received, adjusted for the time value of money.

- The present value at initial recognition of the premium received is  $250 / 1.06^1 = 235.85$ .
- The present value at initial recognition of insurance revenue is

$$30.66 / 1.06^1 + 32.50 / 1.06^2 + 200 / 1.06^2 = 235.85.$$

We can also compare insurance revenue and premium accumulated to December 31, 20X2:

- The present value at December 31, 20X2, of the premium received is  $250 \times 1.06^1 = 265.00$
- The present value at December 31, 20X2, of the insurance revenue is

$$30.66 \times 1.06^1 + 32.50 \times 1.06^0 + 200 \times 1.06^0 = 265.00$$

The insurance revenue is recognized when the contractual service margin is allocated to profit or loss and when the claim occurs, not when the premium is received. The insurance revenue reported in profit or loss (but not discounted or accumulated for the time value of money) is  $30.66 + 32.50 + 200 = 263.16$ .

The insurance contract is profitable, so the insurance revenue minus the insurance service expense is the profit, adjusted for the time value of money. The expected profit of 57.85 at initial recognition accumulated to December 31, 20X2, is  $57.85 \times 1.06^2 = 65.00 = 265$  (insurance revenue) – 200 (insurance service expense).

#### *Onerous contracts and differences between expected and actual claim payments*

We show the effects of onerous contracts and of experience adjustments:

- A. the contract is onerous at initial recognition
- B. the claim is paid for an amount different than its expected value

*Illustration:* An insurer writes a two-year policy on December 31, 20X0, and expects to

- receive on December 31, 20X1, premium of 250
- incur on December 31, 20X2, a claim for 300

The discount rate for this insurance contract is 6% *per annum*. The claim occurs on December 31, 20X2, for an estimated 300. The insurer pays the claim on January 1, 20X3 for (a) 320 or (b) 280.

*Part A:* At initial recognition, the expected profit is  $250 / 1.06^1 - 300 / 1.06^2 = (31.15)$ . The contract is onerous, so no profit is allocated to 20X1 or 20X2 insurance revenue.

- The expected loss of -31.15 at initial recognition is 20X0 insurance service expense.
  - This expected loss is the loss component of the liability for remaining coverage.
  - The liability for remaining coverage excluding the loss component is zero, as the premium has not yet been received.
- The insurance finance expense for 20X1 on the loss component of the liability for remaining coverage is  $31.15 \times 6\% = 1.87$ , or  $300 \times (1.06^{-1} - 1.06^{-2}) + -250 \times (1.06^0 - 1.06^{-1}) = 1.87$ .
  - $31.15 \times 6\%$  is the income statement approach (accretion of interest).
  - $300 \times (1.06^{-1} - 1.06^{-2}) + -250 \times (1.06^0 - 1.06^{-1})$  is the balance sheet approach.
- After the premium is received on December 31, 20X1:
  - The liability for remaining coverage is  $300 \times 1.06^{-1} = 283.02$
  - The loss component of the liability for remaining coverage is  $31.15 + 1.87 = 33.02$ .
  - The liability for remaining coverage excluding the loss component is  $283.02 - 33.02 = 250.00$ , which is the premium received on that date.
- The insurance finance expense in 20X2 is  $300 - (33.02 + 250) = 16.98$ . We allocate the insurance finance expense to the two parts of the liability for remaining coverage:
  - Loss component:  $16.98 \times 33.02 / (33.02 + 250) = 1.98$
  - Liability for remaining coverage excluding the loss component:  $16.98 \times 250 / (33.02 + 250) = 15.00$
  - For this simple scenario with no risk adjustment for non-financial risk and no cash outflows other than claims we verify this allocation as  $33.02 \times 6\% = 1.98$  and  $250 \times 6\% = 15.00$ .
- At December 31, 20X2, right before the claim is paid, the liability for remaining coverage is
  - Loss component:  $33.02 + 1.98 = 35.00$
  - Liability for remaining coverage excluding the loss component:  $250 + 15.00 = 265.00$ .

- The total liability for remaining coverage is  $265.00 + 35.00 = 300.00$ .
- The part of the incurred claim funded by the premium is 265, so the insurer recognizes 265 of *insurance revenue* on December 31, 20X2.
- Of the incurred claim of 300, 31.15 was *insurance service expense at initial recognition*, and 265 is 20X2 *insurance service expense*. The present value of the two pieces at December 31, 20X2, is  $31.15 \times 1.06^2 + 265 = 300.00$ .

*Part B:* The incurred claim is paid for an amount different from its expected value. The change in the claim amount (a change in estimate or a paid amount different from the estimate) is insurance service expense.

- If the claim is paid for 320, the insurer reports  $320 - 300 = 20$  as 20X3 insurance service expense.
- If the claim is paid for 280, the insurer reports  $280 - 300 = -20$  as 20X3 insurance service expense.

Whether the claim is paid for 320 or 280, the 20X3 insurance revenue is zero.

#### *Cash inflows and outflows*

The sign convention shows the effect on the insurance contract liability. We review how cash inflows, cash outflows, revenue, and expenses affect the insurance contract liability and the signs of the accounting entries.

*Cash inflows* from policyholders increase the insurance contract liability, and cash outflows to policyholders or claimants decrease the insurance contract liability. Cash inflows raise the insurer's cash asset (a debit) and are offset by an increase in the insurer's insurance contract liability (a credit); cash outflows reduce the insurer's cash asset (a credit) and are offset by a decrease in the insurer's insurance contract liability (a debit).

*Illustration:* An insurer has an insurance contract liability (such as a policyholder account balance) of 500. If the insurer receives another 100 from the policyholder, the insurance contract liability becomes 600 (the policyholder account balance becomes 600). If the policyholder withdraws 100 from the account balance, the insurer's insurance contract liability becomes 400.

The sign convention in the IFRS 17 *Illustrative Examples* and adopted here is:

- Cash inflows, such as policy premiums and reinsurance recoverables, increase the Insurance contract liability and are positive entries on the IFRS 17 reconciliation exhibits.
- Cash outflows, such as claim payments and acquisition cash flows, decrease the insurance contract liability and are negative entries on the IFRS 17 reconciliation exhibits.

Insurance revenue decreases the insurance contract liability, and insurance expenses increase the insurance contract liability. Revenue is a credit on the income statement (statement of financial performance) and is offset by a decrease in the insurance contract liability, which is a debit on the balance sheet (statement of financial position). Expenses are debits on the income statement and are offset by increases in the insurance contract liability (credits) on the balance sheet.

*Illustration:* An insurer has an insurance contract liability for the unearned profit (contractual service margin) on an insurance contract. As the insurer provides insurance protection, it earns insurance revenue (a credit on the income statement) as the contractual service margin is allocated to profit or loss, and the insurance contract liability decreases (a debit on the balance sheet), even if no cash flows occur. As time passes, the present value of the insurance contract liability increases for the time value of money (a credit on the balance sheet), which is offset by insurance finance expense (a debit on the income statement).

Estimates of future claims (and their risk adjustments for non-financial risk) and insurance finance expenses are positive entries on the reconciliation exhibits. The release of the risk adjustment for non-financial risk and the allocation of the contractual service margin to profit or loss (which are revenues) are negative entries.

### *Pricing of insurance contracts*

Both the IFRS 17 accounting entries and the pricing of the insurance contract depend on the present value of cash flows. The investment yield on the assets backing the insurance contract liability affects investment cash flows and the net financial result, which are shown in the statement of financial performance, not in the IFRS 17 reconciliation exhibits.

The premium received and the claim payments do not depend on the discount rate for fulfilment cash flows or the labeling of the payments as insurance component or as investment component. IFRS 17 separates the income into

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

The division of income into insurance service expense vs insurance finance expense improves presentation of results. IFRS 17 says investors make better decisions if they know how the present value of the insurance service vs the time value of money contributes to earnings.<sup>24</sup>

The division of the cash flows between the insurance component and the investment component depends on the relation of payments to policyholders and insured events. Payments made only if the insured event occurs are insurance components; payments made even if the insured event does not occur are investment components. If less of the claim payment depends on insured events (say 80 instead of 100), the investment component would be lower by 20, and the insurance revenue would be higher by 20.

The discount rate depends on risk-free interest rates, not the return on underlying assets, if the insurance contracts do not have direct participation features and changes in assumptions that relate to financial risk do not have a substantial effect on the amounts paid to policyholders.<sup>25</sup>

- 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.

The discount rate used for accounting statements does not change the payments to policyholders. It is the yield used to calculate the present value of the future cash flows, not the yield used to determine the payments to policyholders (unless the payments to policyholders are linked to the returns on specified pools of assets). If this accounting yield (the IFRS 17 discount rate) is higher, the beginning reserve (insurance contract liability) is lower and the insurance finance expense is greater, so the liability increases more during the year.

The net financial result shown on the IFRS statement of financial performance shows the investment income minus the insurance finance expense. The net financial result depends on (i) the investment yield vs the IFRS 17 discount rate and on (ii) the financial assets held by the insurer vs the present value of the future cash flows for the insurance contracts.

### *Insurance service result vs net financial result*

[This section, describing three methods to compute the net financial result, is not tested on the final exam. It is included here for those readers who want explanation of how the net financial result is computed.]

IFRS 17 requires separate presentation of the insurance service result and the net financial result (or finance result).<sup>26</sup> The insurance service result is insurance revenue minus insurance service expense.

The net financial result is the investment income on the financial assets minus the insurance finance expense.

- The insurance finance expense is reported in the reconciliations of the insurance contract liability.
- The investment income on the financial assets is reported on the statement of financial performance.

The investment income to be included in the net financial result is unclear. The financial assets held by an insurer are not linked to the obligations to policyholders, except for insurance contracts with direct participation features and investment contracts with discretionary participation features. For other insurance contracts, even if the crediting rate on the policyholder account balances is based on the expected return on a specified pool of assets, the insurer's own asset portfolio may differ from the specified pool of assets.

The financial assets included in the net financial result may be measured several ways:

- All financial assets held by the insurer.
- The financial assets supporting the insurance contracts.
- The financial assets from underwriting cash flows.
- The financial assets backing the insurance contract liability.

*All financial assets:* The net financial result is reported on the insurer's financial statements, not on the IFRS 17 reconciliations of the insurance contract liability. The simplest measure is the total investment income from all assets minus the insurance finance expense report in the reconciliation of the insurance contract liability.

This simple measure has little relevance to the profitability of the insurance contracts. An insurer holding more assets, even if they are unrelated to the insurance contracts, shows a greater net financial result.

*Financial assets from underwriting cash flows:* To compute the net financial result, the IFRS 17 *Effects Analysis* uses the assets bought with the underwriting cash flows, or the premium inflows minus the expense and claim outflows. But this method does not adjust for profit that is transferred from the insurance contract liability to the general equity of the insurer or for the losses that are transferred from the general equity of the insurer to the insurance contract liability.

This method is simple to model for groups of insurance contracts, since the cash flows are computed for the fulfilment cash flows and the reconciliations of the insurance contract liability. But the pattern of investment income is not consistent with the pattern of insurance finance expense. Each year, the allocated profit from the insurance contracts is moved from the insurance contract liability to profit or loss, but the investment income on that profit is included in all future years in the net financial result.

*Illustration:* A claim on a permanent life insurance contract will be paid in forty years. The contractual service margin at initial recognition is 80, so the present value of the amount allocated to profit or loss is  $80 / 40 = 2$  each year. The insurance finance expense declines each year as the insurance contract liability decreases, but the investment income grows with compound interest until the claim occurs and is paid.

A group of permanent life insurance contracts has expected claims over perhaps fifty year. The insurance finance expense declines from a high value at initial recognition to almost zero in the last year, but the net financial result may increase each year, unrelated to the insurance finance expense.

*Financial assets backing the insurance contract liability:* The investment income and the insurance finance expense have the same base (the insurance contract liability), but the investment yield is generally greater than the IFRS 17 discount rate. As claims occur and are paid and as profit is allocated from the contractual service margin to profit or loss, the financial assets on which the investment income is computed decline in the same pattern as the insurance contract liability. The allocated profit shifts from the insurance contracts to the insurer's equity and no longer affects the net financial result. Once the last claim occurs and is paid, the insurance finance expense is zero and the net financial result is zero. The profits from past years do not affect the net financial result in future years and are not double counted.

*Financial assets supporting the insurance contracts:* These assets are those backing the insurance contract liability plus those backing the insurer's required capital.

This measure is most relevant to investors, but it might not be inconsistent among insurers. Required capital is the amount needed to optimally run the insurance operations. Most countries prescribe minimum capital requirements, not optimal requirements; these minimums vary by country and are not well defined even for a single country. Some insurers hold just the minimum required capital; most hold about twice the minimum prescribed by their country's regulation; others hold considerably more capital.

Insurers using the cost of capital method for the risk adjustment for non-financial risk compute their required capital, whether based on industry averages, state regulation, and the insurer's internal capital model or its own risk and solvency assessment report (if available). The investment yield on this required capital is used to compute the risk adjustment for non-financial risk and it may be used also for the net financial result.

This method deducts the allocation of the contractual service margin to profit or loss and the release of the risk adjustment for non-financial risk from the financial assets backing the insurance obligations, in addition to cash outflows of the insurer. The profit earned by the provision of insurance services leaves the insurance contract liability and enters the general equity of the insurer. The financial assets are zero when the coverage period ends.

This last method is used for actuarial pricing of long duration insurance contracts. It shows the return (profit) to owners from the insurance contracts as the insurance service result plus the net financial result each year.

The net financial result for the illustration above (using the definition in the IFRS 17 *Effects Analysis*) is

- 20X1: 30.66 (the allocation of the contractual service margin to profit or loss in 20X1)
- 20X2:  $32.50 + 200 - 200 = 32.50$  (the allocation of the contractual service margin to profit or loss in 20X2  $\pm$  any experience adjustment when the claim occurs and is paid)

The accumulated value (at December 31, 20X2,) of the insurance service result is  $30.66 \times 1.06 + 32.50 = 65.00$ , which is the accumulated value of the unearned profit at initial recognition.

The finance result is the investment income on the insurer's assets minus the insurance finance result, which is the insurance finance expense on the insurance cash flows.<sup>27</sup> The insurance finance income or expense is

- On the present value of future cash inflows:
  - 20X1:  $-250 \times (1.06^0 - 1.06^{-1}) = -14.15$ .
- On the present value of future cash outflows:
  - 20X1:  $200 / 1.06^1 - 200 / 1.06^2 = 10.68$
  - 20X2:  $200 / 1.06^0 - 200 / 1.06^1 = 11.32$
- On the contractual service margin (the expected profit):
  - 20X1:  $57.85 \times 6\% = 3.47$ .
  - 20X2:  $30.66 \times 6\% = 1.84$
- The total insurance finance expense included in the insurance finance result is
  - 20X1:  $-14.15 + 10.68 + 3.47 = 0.00$
  - 20X2:  $11.32 + 1.84 = 13.16$

In 20X1, before the premium is received and before any allocation of the contractual service margin to profit or loss, the present value of the premium inflow equals the present value of the claim outflow + the contractual service margin, so the total insurance finance expense is zero. In 20X2, after the premium is received, the

change for the time value of money on the present value of cash outflows and the contractual service margin is not offset by changes in the time value of money on cash inflows.

End-notes:

<sup>1</sup> See IFRS 17 *Basis for Conclusions* paragraph BC27: “the determination of revenue under previous insurance accounting practices ... often resulted in ... amounts that could not be easily compared with the information reported by other entities ... Two common factors that resulted in this lack of comparability were:

- (a) the accounting of deposits as revenue; and
- (b) the recognition of revenue on a cash basis.”

<sup>2</sup> See IFRS 17, *Basis for Conclusions*, paragraph BC33: “An investment component is an amount that the insurance contract requires the entity to repay to the policyholder even if an insured event does not occur. ... when an investment component is interrelated with the insurance components in an insurance contract, it is appropriate to measure both the investment component and the insurance component in accordance with IFRS 17 ... [but not] to present the receipts and repayments of such investment components as insurance revenue and incurred claims. To do so would be equivalent to a bank recognising a deposit as revenue and its repayment as an expense. ... These investment components [are excluded] from insurance revenue and incurred claims.” General insurance and term life insurance rarely have investment components.

<sup>3</sup> Not all income flows through the statement of profit or loss. To be precise, we should refer to the statements of financial performance, which are the statement of profit or loss and the statement of other comprehensive income.

<sup>4</sup> The income statement approach is often a depreciated cost or amortized cost method, called a cost model; the balance sheet approach is generally a fair value method, called a revaluation model.

<sup>5</sup> The text here shows the expense as a negative entry. The IFRS 17 reconciliation exhibits follow the IFRS 17 *Illustrative Examples* and show expenses as positive entries and income as negative entries.

<sup>6</sup> The income from the bond is divided between profit or loss and other comprehensive income, depending on the IFRS 9 classification of the bond.

<sup>7</sup> See IFRS 17 paragraph B123: “when an entity provides services in a period, it reduces the liability for remaining coverage for the services provided and recognises insurance revenue. The reduction in the liability for remaining coverage that gives rise to insurance revenue excludes changes in the liability that do not relate to services expected to be covered by the consideration received by the entity. Those changes are:

(a) changes that do not relate to services provided in the period, for example:

- (i) changes resulting from cash inflows from premiums received ...
- (ii) changes that relate to investment components in the period;
- (iii) changes that relate to transaction-based taxes collected on behalf of third parties (such as premium taxes, value added taxes and goods and services taxes) ...
- (iv) insurance finance income or expenses;
- (v) insurance acquisition cash flows (see paragraph B125) ...

(b) changes that relate to services, but for which the entity does not expect consideration, ie increases and decreases in the loss component of the liability for remaining coverage ...” Paragraph B123(a)(i) subtracts the net premium cash flows (gross premium received minus acquisition cash flows paid), B123(a)(ii) subtracts investment components, B123(a)(iii) subtracts transaction-based taxes, B123(a)(iv) subtracts the insurance finance expenses, and B123(a)(v) subtracts the acquisition cash flows. IFRS 17 paragraph B125 includes the

allocated acquisition expenses in the insurance revenue: “An entity shall determine insurance revenue related to insurance acquisition cash flows by allocating the portion of the premiums that relate to recovering those cash flows to each reporting period in a systematic way on the basis of the passage of time. An entity shall recognise the same amount as insurance service expenses.”

<sup>8</sup> See IFRS 17 paragraph B121: “insurance revenue ... depicts the transfer of promised services at an amount that reflects the consideration to which the entity expects to be entitled in exchange for those services. The total consideration ... covers ...

- (a) amounts related to the provision of services, comprising:
  - (i) insurance service expenses, excluding any amounts allocated to the loss component of the liability for remaining coverage;
  - (ii) the risk adjustment for non-financial risk, excluding any amounts allocated to the loss component of the liability for remaining coverage; and
  - (iii) the contractual service margin.
- (b) amounts related to insurance acquisition cash flows.”

<sup>9</sup> See IFRS 17 paragraph B120: “The total insurance revenue for a group of insurance contracts is the consideration for the contracts, ie the amount of premiums paid to the entity: (a) adjusted for a financing effect; and (b) excluding any investment components.”

<sup>10</sup> The coverage units reflect the insurance services provided.

<sup>11</sup> The sign convention here for the statement of profit or loss, following that in the IFRS 17 *Effects Analysis*, shows profit as a positive entry and loss as a negative entry; the IFRS 17 reconciliation exhibits in the IFRS 17 *Illustrative Examples* show revenue as a negative entry and expense as a positive entry.

<sup>12</sup> See IFRS 17 paragraph B123: “The reduction in the liability for remaining coverage that gives rise to insurance revenue excludes changes in the liability that do not relate to services expected to be covered by the consideration received by the entity. Those changes are ... changes that relate to investment components in the period.” See also IFRS 17 paragraph B124(a)(ii): “... insurance revenue for the period can also be analysed as the total of the changes in the liability for remaining coverage in the period that relates to services for which the entity expects to receive consideration. Those changes are insurance service expenses incurred in the period (measured at the amounts expected at the beginning of the period), excluding ... repayments of investment components.”

<sup>13</sup> A transaction-based tax is levied on the transactions of the firm with its customers and suppliers, not on the firm’s income or the wages of its employees.

<sup>14</sup> See IFRS 17 paragraph B65(i): “The cash flows within the boundary include ... transaction-based taxes (such as premium taxes, value added taxes and goods and services taxes) and levies (such as fire service levies and guarantee fund assessments) that arise directly from existing insurance contracts, or that can be attributed to them on a reasonable and consistent basis.” See IFRS 17 paragraph B123(a)(iii): “The reduction in the liability for remaining coverage that gives rise to insurance revenue excludes ... changes that relate to transaction-based taxes collected on behalf of third parties (such as premium taxes, value added taxes and goods and services taxes), and IFRS 17 paragraph B124(a)(iii): “... insurance revenue for the period can also be analysed as the total of the changes in the liability for remaining coverage in the period that relates to services for which the entity expects to receive consideration. Those changes are insurance service expenses incurred in the period (measured at the amounts expected at the beginning of the period), excluding ... amounts that relate to transaction-based taxes collected on behalf of third parties (such as premium taxes, value added taxes and goods and services taxes) ...”

<sup>15</sup> For IFRS, value added taxes are not included in revenue or expense, since the firm is a tax collector, not the recipient of the tax or the payer of the tax. Sales taxes collected are not part of sales revenues and are not reported on statement of profit or loss. Rather, sales taxes, value added taxes, and premium taxes are reported on the statement of financial position as a current liability until they are remitted to the government. Other accounting systems measure revenue as the gross premium (including the premium tax), and include the premium tax as an expense.

<sup>16</sup> See IFRS 17 paragraph B125: “An entity shall determine insurance revenue related to insurance acquisition cash flows by allocating the portion of the premiums that relate to recovering those cash flows to each reporting period in a systematic way on the basis of the passage of time. An entity shall recognise the same amount as insurance service expenses.” IFRS 17 paragraph B65(e) refers to “an allocation of insurance acquisition cash flows attributable to the portfolio to which the contract belongs.” The insurer need not allocate the acquisition cash flows separately for each contract in the portfolio. The illustrations in the IFRS 17 *Effects Analysis* IFRS 17 weight the systematic allocation of acquisition cash flows by the number of contracts in the portfolio each year. Portfolios of whole life insurance contracts have more contracts in force in the early years and fewer contracts in force as policyholders die or their contracts lapse. The systematic allocation on the basis of the passage of time applies to the present values of the acquisition expenses for the coverage units provided. These present values are then amortized to the valuation dates in each year.

<sup>17</sup> See IFRS 17 Appendix A (Defined terms): “An experience adjustment [is] a difference between ... for insurance service expenses (excluding insurance acquisition expenses)—the estimate at the beginning of the period of the amounts expected to be incurred in the period and the actual amounts incurred in the period.”

<sup>18</sup> Experience adjustments for insurance service expenses are the “difference between ... the estimate at the beginning of the period of the amounts expected to be incurred in the period and the actual amounts incurred in the period”; see IFRS 17 Defined Terms. Experience adjustments that relate to current services are not offset by changes in the contractual service margin but are recognized immediately in profit or loss; see IFRS 17 paragraphs BC97(c) and BC96(a). If the expected claim payment does not change, the difference between the present value at the beginning of the year and the present value at the end of the year is insurance finance expense, not insurance service expense. If the expected claim payment does change, the difference in the present values at the beginning of the year and at the end of the year that is reported as insurance finance expense applies to the expected claim payment at the beginning of the year.

<sup>19</sup> The contra-expense as claims occur or are re-estimated is the onerous contract loss accumulated for the time value of money and for changes in the current discount rate, so that at the end of the coverage period, the loss component of the liability for remaining coverage is zero.

<sup>20</sup> See IFRS 17 *Basis for Conclusions* paragraph BC42: “IFRS 17 requires entities to make an accounting policy choice for each portfolio on how to present insurance finance income or expenses. Such income or expenses for a portfolio of insurance contracts is either all included in profit or loss or is disaggregated between profit or loss and other comprehensive income. If disaggregated, the amount in profit or loss is based on a systematic allocation of the expected total finance income or expenses over the duration of the groups of insurance contracts in the portfolio. The systematic allocation is based on the characteristics of the insurance contracts, without reference to factors that do not affect the cash flows expected to arise under the contracts. For example, the allocation of the insurance finance income or expenses should be based on expected recognised returns on assets only if those expected recognised returns affect the cash flows of the contracts.”

<sup>21</sup> See IFRS 17 *Basis for Conclusions* paragraph BC24: “... changes in the carrying amount of the insurance contract have different information value, depending on the nature of the change ...:

(a) changes in estimates that relate to future service only affect the measurement of the total liability to the extent they make a group of insurance contracts onerous ...

(b) changes in estimates relating to current period and past period service are recognised in profit or loss ...  
(c) changes in estimates arising from assumptions that relate to financial risks, including the effects of changes in discount rates, are recognised in profit or loss, or profit or loss and other comprehensive income, in the period in which the change occurs.”

<sup>22</sup> Changes in the crediting rate based on the insurer’s exercise of discretion are changes in the estimated claim payment, not changes in the discount rate; see IFRS 17 paragraph B98: “The terms of some insurance contracts without direct participation features give an entity discretion over the cash flows to be paid to policyholders. A change in the discretionary cash flows is regarded as relating to future service, and accordingly adjusts the contractual service margin.” A discretionary change is not required by the insurance contract. An insurer may have the right to adjust the crediting rate for marketing or competitive reasons.

<sup>23</sup> If the discount rate has changed since initial recognition, the change in the estimates of claims is discounted at the current discount rate for the fulfilment cash flows and at the discount rate determined at initial recognition for the contractual service margin.

<sup>24</sup> Other insurance accounting systems may discount claim payments at a conservative rate for life insurance or not discount at all for general insurance. Investors must form claim payment patterns for each book of business to assess profitability.

<sup>25</sup> If the insurance contract has direct participation features or changes in assumptions that relate to financial risk have a substantial effect on the amounts paid to policyholders, the discount rate does depend on the investment returns.

<sup>26</sup> See IFRS 17, *Basis for Conclusions*, paragraph BC16(b): “the IFRS 17 approach...presents insurance service results (including presentation of insurance revenue) separately from insurance finance income or expenses.” The net financial result is reported in the notes to the financial statements, not as part of the IFRS 17 required disclosures.

<sup>27</sup> See IFRS 17, *Basis for Conclusions*, paragraph BC229: “... The insurance finance result reflects the interest arising on the group of insurance contracts because of the passage of time...”