FA Module 21: IFRS 17 Measurement on initial recognition – practice problems

(The attached PDF file has better formatting.)

The following exercise illustrates the accounting entries at initial recognition.

The final exam does *not* test onerous contracts. On your first reading, skip the sections on onerous contracts.

Exercise 1.2: Measurement on initial recognition

An insurer issues insurance contracts on December 31, 20X0, with coverage periods of three years.

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

We show two claim scenarios: non-onerous contracts and onerous contracts. The insurer estimates the cash outflows for claims as

- non-onerous scenario: 200 each on December 31, 20X1, 20X2, and 20X3.
- onerous scenario: 400 each on December 31, 20X1, 20X2, and 20X3.

At initial recognition, the insurer estimates the risk adjustment for non-financial risk as 120, or 40 per claim.

At initial recognition:

A. What is the present value of the expected future cash inflows?
B. What is the present value of the expected future cash outflows?
C. What is the present value of the expected net cash inflows?
D. What are the fulfilment cash flows?
E. What is the contractual service margin?
F. What is the insurance contract liability?
G. What is the entry in the statement of profit and loss?

Right after the premium is collected:

H. What are the fulfilment cash flows?
I. What is the contractual service margin?
J. What is the insurance contract liability?
K. What is the entry in the statement of profit and loss?

Part A: The premium is collected right after initial recognition, so the present value of the expected future cash *in*flows = 900.

{For *annual premium* life insurance, the insurer estimates the premiums to be paid each year based on mortality rates and lapse rates, and discounts them at current (market) risk-free rates. The final exam does not test annual premium life insurance contracts.}

Part B: The claims paid on December 31, 20X1, 20X2, and 20X3, are discounted at the risk-free rate of 5% *per annum*, so the present value of the expected future cash outflows is

for the non-onerous scenario:

- 20X1: $200 / (1 + 5\%)^1 = 190.48$
- 20X2: $200 / (1 + 5\%)^2 = 181.41$
- 20X3: $200 / (1 + 5\%)^3 = 172.77$

The total is $200 \times (1 / (1 + 5\%)^1 + 1 / (1 + 5\%)^2 + 1 / (1 + 5\%)^3) = 544.65$

for the onerous scenario:

- 20X1: $400 / (1 + 5\%)^1 = 380.95$
- 20X2: $400 / (1 + 5\%)^2 = 362.81$
- 20X3: $400 / (1 + 5\%)^3 = 345.54$

The total is $400 \times (1 / (1 + 5\%)^1 + 1 / (1 + 5\%)^2 + 1 / (1 + 5\%)^3) = 1{,}089.30$.

This exercise assumes all claims are paid on December 31, and the discount rate does not vary by maturity.

Part C: The present value of the expected net cash outflows is

- non-onerous scenario: 544.65 – 900 = (355.35)
- onerous scenario: 1089.39 – 900 = 189.30

Most accounting texts, as well as the IFRS 17 *Effects Analysis*, show cash outflows and liabilities as negative and cash inflows and assets as positive. We use here the convention in the IFRS 17 *Illustrative Examples*: cash outflows and liabilities are positive and cash inflows and assets are negative. IFRS 17 focuses on the insurer's liabilities: the fulfilment cash flows, the contractual service margin, and the insurance contract liability, all of which are generally positive once the premium is received.

The fulfilment cash flows are generally negative at initial recognition (before the premium is received), unless the contract is onerous (unprofitable). Onerous differs from unprofitable two ways:

- IFRS 17 uses a risk-free discount rate and a separate risk adjustment for non-financial risk; financial profit discounts the free cash flows to the firm at the opportunity cost of capital.
- Expenses directly attributable to the portfolio of insurance contracts are considered by IFRS 17; other expenses, such as sunk costs not directly attributable to the portfolio of insurance contracts are written off as expenses when they occur and do not affect whether the contract is onerous.

The contractual service margin for primary insurance contracts is positive (a liability) or zero. Reinsurance contracts held generally have negative contractual service margins (assets), which offset part of the liability on the primary insurance contracts.

The insurance contract liability is the fulfilment cash flows plus the contractual service margin, and it is

- zero at initial recognition (unless the contract is onerous)
- generally positive (a liability) for primary insurance contracts after the premium is received
- generally negative (an asset) for reinsurance contracts held after the reinsurance premium is paid

Question: In most texts, cash inflows are positive and cash outflows are negative. For IFRS 17, why are the cash inflows negative and the cash outflows positive?

Answer: IFRS speaks of fulfilment cash flows, or the cash flows required to fulfill the insurance contract (the insurance services). The fulfilment cash flows are the claims cash outflows, directly attributable acquisition cash flows, and the risk adjustment for non-financial risk, minus the premium cash inflows, which is the cash needed to cover the insurer's liability (the insurance services).

The sign of the cash flows (positive or negative) is a convention, not an accounting rule. IFRS 17 itself does not show cash flows as positive or negative. The IFRS 17 *Illustrative Examples* show

- liabilities and expenses as positive entries
- assets and revenue as negative entries.

Part E: The fulfilment cash flows = the present value of the expected net cash outflows + the risk adjustment for non-financial risk:

- non-onerous scenario: 544.65 + 120 – 900 = (235.35)
- onerous scenario: 1089.30 + 120 – 900 = 309.30

The risk adjustment here for non-financial risk does not accrete interest: it is 40 for each year's claims at initial recognition and remains 40 until released or re-estimated. In contrast, the fulfilment cash flows are present values and accrete interest over time. This difference affects the insurance finance expenses (see below).

IFRS 17 does not specify whether the risk adjustment for non-financial risk accretes interest; both methods are acceptable. The risk adjustments in the IFRS 17 *Illustrative Examples* do not accrete interest. The cost of capital method risk margin for the Swiss Solvency Test and Solvency II, which may be used for IFRS 17 as well, accretes interest.

Part F: If the fulfilment cash flows at initial recognition are negative, the present value of the cash inflows is more than the present value of the cash outflows, and the insurance contracts are expected to be profitable.

The profit is not recognized (in the statement of profit or loss) until the insurance services are performed. The insurer reports a contractual service margin at initial recognition which is moved to profit as insurance services are performed. The contractual service margin + the fulfilment cash flows = the insurance contract liability.

The profit is recognizes in proportion to coverage units: the policies in force times the death benefit per policy for life insurance and either exposues or net premiums for general insurance. Enter a group as they are issued and leave a group at deaths, lapses, and cancellations. This exercise assumes constant coverage units so the profit is recognized evenly over the contract period.

If the fulfilment cash flows at initial recognition are positive, the insurer reports a contractual service margin of zero at initial recognition and it reports a loss (in the statement of profit or loss).

- For the non-onerous contracts here, the contractual service margin = 0 – the fulfilment cash flows = 0 – -235.35 = 235.35.
- For the onerous contracts here, the contractual service margin = 0.

Part G: If the fulfilment cash flows at initial recognition are positive, the insurance contracts are expected to onerous ("loss-making"). The expected loss is recognized immediately; it is not deferred and spread over the contract period (as the unearned profit is spread). The insurer reports an insurance contract liability at initial recognition which is the expected loss on the onerous contracts.

- The insurance contract liability is a credit on the statement of financial position.
- The loss is a debit on the statement of profit and loss.

- For the non-onerous contracts here, the insurance contract liability at initial recognition = 0.
- For the onerous contracts here, the insurance contract liability at initial recognition = the fulfilment cash flows at initial recognition = 309.30.

Question: Is the insurance contract liability equal to the loss in the statement of profit and loss?

Answer: At *initial recognition* the insurance contract liability equals the loss in the statement of profit and loss.

- As the insurer collects premium, the insurance contract liability increases, but no entry is made to the statement of profit and loss (the premium is a deferred revenue or an unearned revenue).
  - Premiums are generally collected before claims are paid, so the insurance contract liability is positive.

- If the contract is onerous and the estimate of future cash outflows increases in later years, the statement of profit and loss shows the incremental loss, whereas the insurance contract liability is cumulative.
  - The IFRS 17 *reconciliation of financial statements* shows this incremental vs cumulative relation.

The reconciliation exhibits are explained in later modules. The articulation of incremental income statements (statement of profit or loss) with cumulative balance sheets (statement of financial position) is discusses in several previous modules as well.

Question: Does the insurer have either a contractual service margin or an insurance contract liability, but not both, at initial recognition?

Answer: Insurance contracts that are managed together and deal with the same risks, such as life insurance, motor insurance, or health insurance, are grouped into portfolios. An insurer with different types of insurance contracts has separate portfolios. An insurer that sells insurance contracts in different locations with different pricing, underwriting, or management, also has separate portfolios.

Each portfolio is divided into groups by expected profitability and by issue date. Expected profitability means

- contracts that are expected to be onerous
- contracts that do not have a significant probability of becoming onerous
- contracts that may or may not become onerous

The issue dates of contracts within a group may not differ by more than one year. Insurers group contracts by issue date, such as contracts issued in 20X1, in 20X2, and so forth.

Contracts are assigned to groups at initial recognition and do not change groups subsequently. Contracts that were expected to be onerous at initial recognition stay in the group of onerous contracts even if they turn out to be profitable (and *vice versa*).

At initial recognition, for any group of contracts, an insurer has a contractual service margin or an insurance contract liability, but not both. Subsequent cash flows (premiums, acquisition costs, claims), revenue, and expenses affect the insurance contract liability and sometimes also the contractual service margin. How the cash flows affect the contractual service margin determines when insurance revenue and insurance service expense are recognized (explained later).

Part H: The premium collection reduces the future cash inflows but not the future cash outflows or the risk adjustment for non-financial risk. The fulfilment cash flows =

  present value of future cash outflows
+ risk adjustment for non-financial risk
– present value of future cash inflows

After the premium is collected, the fulfilment cash flows are generally positive (net outflows, or a liability):

- For the non-onerous contracts: 544.65 + 120 = 664.65
- For the onerous contracts: 1089.30 + 120 = 1,209.30

Part I: The contractual service margin depends on the expected premium cash flows at initial recognition, and it does not change when premium is received. The receipt of premium does not affect the accrued income or expense.

Illustration: At initial recognition, the present value of future (premium) cash inflows = 100, the present value of future (claim) cash outflows = 80 ⇛ the fulfilment cash flows = –20, the contractual service margin = 20, and the insurance contract liability = 0. The insurance income (insurance revenue) = the change in the insurance contract liability = 0 – 0 = 0. Right after initial recognition, the premium is received, so the fulfilment cash flows = 80, the contractual service margin = 20, and the insurance contract liability = 100. The insurance

revenue = the change in the insurance contract liability *adjusted for the premium received* = (100 – 0) – 100 = 0.

Part J: The insurance contract liability increases by the amount of premium received.

Intuition: At time t=0, no insurance services have been provided yet, expected premium is 100, and unearned profit is 20. If premium of 20 is received, the unearned profit does not change, but the future cash flows increase 20 and the insurance contract liability increases 20.

Part K: Premium collection does not change the statement of profit and loss.

Question: Premium is cash. When a firm sells a product, the statement of profit and loss shows the cash received as income. Why is premium different?

Answer: The statement of profit and loss shows the income as the insurance services are performed, not as cash is collected. Neither GAAP nor IFRS ties insurance revenue to the time premium is received:

GAAP shows insurance revenue on premium due dates for life insurance and other long duration contracts, and as insurance protection is provided for general insurance and other short duration contracts.

IFRS 17 shows insurance revenue by three items:

- the occurrence of claims (and related expenses) expected to be compensated by premium
- the allocation of directly attributable acquisition cash flows over the contract period
- the allocation of the contractual service margin to profit or loss over the contract period.