Actuaries Institute Australia

LIFE INSURANCE AND RETIREMENT PRODUCT DEVELOPMENT

TUTORIAL 3 SEMESTER 1 2020: VALUATION

Education Program
ACTUARIES INSTITUTE

Education that Counts

Question 1 [7 marks]

Describe the risks to the policyholder of purchasing a conventional with profits endowment assurance policy.

(The command verb is 'Describe', which means a much more detailed description is required than e.g. outline. A list of points in bullet format is not sufficient to pass.)

This question is closer to the Product Development subject rather than valuations as the answer discusses customer needs. It can be answered from your knowledge of life insurance and has been included to help you understand the word describe. Too many answers in exams are too light and do not really satisfy 'describe' or 'explain' command verbs.

Answer (ST2 Oct 2015 question 4)[1]

The main risk to the policyholder is that the amount of benefit payable under the contract is insufficient for the policyholder needs or is materially lower than expected. This could be either on death or at maturity.

For example, if the policy is being used to finance a specific lump sum liability in the future, such as repayment of a mortgage, then there is a risk of a shortfall if the final payout is too small, depending on the extent to which this was based on the guaranteed or discretionary elements.

[1] ST2 is a UK exam - see actuaries.org.uk

There is a risk of lower than expected bonuses. A performance shortfall is likely to be mainly due to poor investment performance, though it could also be due to high expenses, high miscellaneous deductions e.g. due to surrender losses or losses on without profits business or higher than expected deductions such as guaranteed mortality benefit payments. The smoothing of benefits mitigates these risks to some extent.

There is a risk of inflation in relation to the level of benefits paid, although the with profits element of the contracts will provide some protection against inflation, guaranteed benefits (e.g. if a fixed benefit is payable on death) will be eroded in value if inflation is high.

The policyholder carries some risk of the insurer becoming insolvent. However this should be less than if the company just sold conventional without profits contracts, as future surpluses may be used to maintain solvency, before being distributed to policyholders.

The policyholder is exposed to the risk of being unable to maintain premiums, for example, due to accident, sickness, redundancy, or other loss of income.

And the benefit received if the policy is surrendered or made paid-up may not appear to be good value for money, particularly early in the policy term.

There is a risk that the policyholder's need change and the product is not flexible enough to meet these new needs. There is the risk that the policyholder does not understand the policy; therefore it may not meet their needs. There is a risk the policy was mis-sold, for example, if the policy was taken out to repay a mortgage on a house and the risks were not adequately explained.

There is a risk that changes in taxation may alter the value from the policy.

Question 2 [9 marks]

(i) State the general considerations for any life insurer when setting assumptions. [4]

(State – i.e. list points although each needs to be a complete sentence. You do not have to provide a justification.)

A large life insurer is reviewing its lapse assumptions for critical illness business. The Appointed Actuary has stated that the results of this process need to be widely communicated to the actuaries in the business.

(ii) Explain why this wide communication might be needed. [5]

Many candidates will list or outline an answer rather than explain. 'Explain' is defined as make (an idea or situation) clear to someone by describing it in more detail or revealing relevant facts.

Answer (ST1 April 2010)

(i)

Consider the use to which the assumptions will be put and the needs of the user.

Take particular care over the choice of those assumptions which will have the most financial significance.

Allow for any consistency which should exist between the various assumptions.

Ensure that the parameters derived from data are done so as accurately as the body of data will permit.

Ensure that the data used to derive these assumptions are relevant to the risks which the policies encompass.

Ensure that bases used for periodic valuations and reserves are flexible to reflect changing risk circumstances.

Consider any legislative or regulatory constraints.

(ii)

The lapse assumptions may be used for reserving, pricing and embedded value purposes, amongst others.

Communication across the company ensures consistency between these metrics – so that actuaries calculating all metrics make the appropriate updates. This ensures that good management decisions are made. In particular, if pricing assumptions are not updated to reflect the latest lapse assumptions then prices may be set incorrectly. Similarly, if reserving assumptions are not updated then reserves may be inadequate. If EV assumptions are not updated then the EV may be misreported.

It also ensures consistency between products – for example, an actuary working on a new product development may wish to make allowance for the changes when estimating their future lapse assumptions.

The lapse assumptions will interact with other assumptions: if lapse assumptions increase, we might expect to need to review morbidity assumptions also. This is due to the effect of selective lapsing. Lapse rates may also impact per policy expense assumptions.

If the review highlights a problem with persistency, action may also be able to be taken to address it (e.g. change commission structure).

Professional guidance relevant to that country is likely to encourage open communication.

Reinsurers may also require regular experience updates, so the actuaries that liaise with them will need to be kept up-to-date.

Question 3 [8 marks]

(i) State the key reasons for calculating the technical reserves of an insurer. [3]

(ii) Describe how the Improvements in recovery rates from cancer would affect the reserves for existing business of an insurer writing accelerated and stand-alone trauma insurance and income protection. [5]

Answer (ST1 April 2010)

(i)

Reasons to calculate technical reserves include:

- to determine the liabilities to be shown in the insurer's published accounts
- if separate accounts have to be prepared for the purpose of supervision of solvency, to determine the liabilities to be shown in those accounts
- to determine the liabilities to be shown in internal management accounts of the insurer
- to estimate the cost of claims incurred in recent periods and hence provide a base for estimating the future premiums required to attain a given level of profitability
- to value the insurer for merger or acquisition
- to set investment strategy
- to assist with the assessment of reinsurance

The above would be the standard book at that time for that closed book exam in the UK. They are sufficiently similar to the reasons listed in section 4.2.1.

(ii)

Trauma:

No impact if the cancer is not covered under the policy wordings.

(note this style – there are marks for obvious points.)

If covered, then small/ no impact for accelerated CI as the policy is not affected by recovery as payout do not depend on recovery.

If covered for the stand alone policy then it depends if the survival rate through the survival period changes. More people surviving means higher reserves are required.

The improvement rate may mean the rate of recovery in the period beyond the survival period improves. If so, then there is no impact as per the accelerated trauma policies.

The change in recovery rate may lead to e a recognition that this type of cancer is no longer 'traumatic' as the severity is reduced.

Income protection:

Payments may be paid for a shorter duration if policyholders are able to return to work earlier on a part-time basis with reduced benefits. Claims may even be avoided if there is a long waiting period. The effect would be a reduction on reserves.

An alternative argument is that some policyholders would previously have died but now survive and receive payments for longer. This would lead to an increase to reserves.