

INSTITUTE AND FACULTY OF ACTUARIES

EXAMINERS' REPORT

April 2013 examinations

Subject ST7 – General Insurance: Reserving and Capital Modelling Specialist Technical

Introduction

The Examiners' Report is written by the Principal Examiner with the aim of helping candidates, both those who are sitting the examination for the first time and using past papers as a revision aid and also those who have previously failed the subject.

The Examiners are charged by Council with examining the published syllabus. The Examiners have access to the Core Reading, which is designed to interpret the syllabus, and will generally base questions around it but are not required to examine the content of Core Reading specifically or exclusively.

For numerical questions the Examiners' preferred approach to the solution is reproduced in this report; other valid approaches are given appropriate credit. For essay-style questions, particularly the open-ended questions in the later subjects, the report may contain more points than the Examiners will expect from a solution that scores full marks.

The report is written based on the legislative and regulatory context pertaining to the date that the examination was set. Candidates should take into account the possibility that circumstances may have changed if using these reports for revision.

D C Bowie
Chairman of the Board of Examiners

July 2013

General comments on Subject ST7

Candidates who are well prepared generally appear to perform reasonably on ST7, with the more challenging questions tending to occur on SA3. Candidates should consider the following advice however (if they are not already):

- Lists are hugely valuable for breadth of point generation but candidates should always exercise judgement when applying them.
- Calculation questions will come up on a regular basis with ST7, as candidates can clearly observe from examination of historical papers. Candidates should always be prepared for such staples as balance sheet preparation, triangle manipulations and projections and reinsurance layer calculations (along with being able to carry out any necessary adjustments including inflation, exposure and time period issues).
- Capital questions should be expected on every paper and represent a sufficient proportion of the course content that candidates should not expect to be able to pass on their reserving knowledge alone. Those who do not encounter capital work in their professional lives should be particularly careful to ensure that they take time to familiarise themselves with this element of the course.
- Candidates should aim to be able to give near exact glossary definitions as incoherent or vague descriptions will be marked harshly. If candidates struggle to remember definitions verbatim they should take the time to properly analyse the glossary definition to ensure they have fully absorbed all the nuances of the definition.
- It is important to always read the question properly.

Comments on the April 2013 paper

See comments under individual questions.

- 1** (i) Assumptions:
Policies annual
Risks earned evenly over each policy year
Policies commence mid-period on average
Expenses remain the same after the premium rate increase
Mix of business remains the same after the premium rate increase/for each period
The calculation of UPR and URR is on an annual basis to calculate the AURR for the year (i.e. credit is taken for periods when $URR < UPR$)
Everything is gross of reinsurance or no details about reinsurance have been given so no adjustments are possible in the calculations to allow for reinsurance
Combined ratios accurate

Calculations:

Combined ratio at the new rate = $111/120 = 92.5\%$

<i>Period</i>	<i>Written Premium</i>	<i>Unearned Exposure</i>	<i>UPR</i>	<i>Combined Ratio</i>	<i>URR</i>	<i>AURR</i>
Q1	200	1/8	25.00	111.00%	27.75	2.75
Q2	220	3/8	82.50	111.00%	91.58	9.08
Q3 @ old rate	150	7/12	87.50	111.00%	97.13	9.63
Q3 @ new rate	50	17/24	35.42	92.50%	32.76	-2.66
Q4	200	7/8	175.00	92.50%	161.88	-13.13
Total			<u>405.42</u>		<u>411.09</u>	<u>5.67</u>

$$AURR = 411.09 - 405.42 = 5.67$$

A fairly straightforward calculation which very few got right. The main errors were not splitting the calculations for the third quarter i.e. assuming premium received half-way through the quarter rather than at the respective mid-points of each period and/or not assuming AURR is on an annual basis and therefore taking AURR at new rates as zero. Some calculated UPR with not splitting 3rd quarter and URR with splitting 3rd quarter which is not logical. Some candidates wrongly made adjustments to the UPRs for the rate changes.

- (ii) The starting point assumption of 111% combined ratio is itself an estimate and may be incorrect
The mix of business may change: bad risks may stay and good risks may leave

The decrease in combined ratio will be smaller in such circumstances.

Competitors may also have increased their rates.

The impact on the mix of business and hence on combined ratio will be affected by the size of their increases.

Management expenses may not be as assumed

The decrease in combined ratio may therefore be lower than forecast .

If rate increases lead to a fall in premium volumes this may not be accompanied by a fall in management expenses
If volumes are maintained then the 20% increase will raise the denominator so the expense ratio would be lower

To keep the business volume at the earlier level acquisition expenses may need to be increased.

This will increase the combined ratio to above the target.

Any answer based on actual losses being different from expected e.g. “unexpected large losses” is not a valid answer as the question refers to expected loss ratio, not its outcome

Other external factors such as:

Claim inflation assumptions being wrong

.. or if the rates are before claim inflation then this should be taken account of in the loss ratio expectation

Reinsurance: any reasonable point e.g. If RI premium was fixed, impact of premium increase on net combined ratio could be greater than expected

Any other reasonable generic points

The most common error here was not considering the combined ratio as loss ratio plus expense ratio and hence not commenting on expense effects. Some answered the question of why the company should not be targeting a 92.5% ratio than rather than the question asked.

- 2 (i) Let the free reserves at 1.1.13 be A.
SM at 31.12.13 = SM at 1.1.13 + insurance profit + yield on SM
 $1000 = A + 60 + 0.025 \times (A + 1000)/2$
Giving $A = 916$
Average capital employed = $(916 + 1000)/2 = 958$
Yield on capital employed = $0.025 \times 958 = 24$
Projected return on capital = $(60+24)/958 = 8.8\%$

Very few candidates got anywhere with this question with hardly any attempts at any algebra. A very similar question has been asked before (in 1989) with less problems. For part (i) a large number of candidates assumed that free reserves b/fwd were the same as those c/fwd which is not possible as the question states there has been moderate growth. Many others took the free reserves b/fwd as those c/fwd less insurance profit thus ignoring investment income on the free reserves and the investment income on free reserves was often not included in the return on capital calculation. In this and other cases where the two free reserve figures were different candidates often calculated the return on capital employed at the year-end rather than on the average capital as requested in the question.

- (ii) Let the required level of growth be g .
 $SM \text{ at } 31.12.14 = SM \text{ at } 1.1.14 + \text{insurance profit} + \text{yield on SM}$
 $1000(1 + g) = 1000 + 60(1 + g) + 0.025(1000)(1 + g/2)$
 Giving $g = 9.2\%$

There were almost no reasonable answers to this part. Favourite answers illogically were given as 2.5% being the yield on free reserves and 25% being free reserves c/fwd divided by written premium.

- (iii) The projection is as follows, using equivalent formulae to those above:

	2013	2014	2015
Premium	4000.0	5000.0	6250.0
Insurance Profit	60.0	75.0	93.8
Yield on SM	24.0	26.3	29.1
Total Return	84.0	101.3	122.8
SM at end of year	1000.0	1101.3	1224.1
SM%	25.0%	22.0%	19.6%

Marks were available for calculating the premium and insurance profit and making an attempt at the rest but many did not do even this. Some calculated using the formula free reserve c/f = free reserve b/f + insurance profit + (free reserve b/f + ½ insurance profit) x 2.5% which while not being quite correct is a reasonable approximation giving SM at end 2014 of 1100.9 and end 2015 of 1223.4 and correct SM%'s at 1 d.p.

- (iv) It can be seen that the solvency ratio of the company will reduce over the period.
 This is because in any given year the total return on the solvency margin is less than that necessary to increase the initial solvency margin by 25%.
 Because the growth in yield lags the growth in premium the solvency margin decreases over time

Many candidates did state that solvency margins would be reducing and gave a reasonable explanation thereby getting the mark for this part.

- (v) If growth continues at this rate then the solvency will cease to fall once it has reached a certain level ($m\%$).
 Using the standard formula, with premium P :
 $mP = mP/1.25 + 60/4000.P + 0.025(mP/1.25 + mP)/2$
 Giving $m = 8.5\%$

Almost nobody made a reasonable attempt at this part. A large number of candidates stated that the ultimate solvency ratio would reduce to zero which a bit of thought would have told them was not logical.

- 3** (i) Value at Risk
The loss at a predefined confidence level (e.g. 99.5%).
...over a fixed time period e.g. a year
Consequently if an insurer holds capital at the VaR it will remain solvent with probability of the confidence level (e.g. 99.5%)
and be insolvent with probability of one minus the confidence level (e.g. 0.5%)

Reasonably well answered on what VaR is although some candidates thought this it was a confidence interval or probability rather than a loss at a given probability. Very few candidates stated that it is over a time period. Not many candidates described how it is used in general insurance.

- (ii) In formula for s.d. should be 9 for sample rather than 10 for whole population

There is a clear (upwards) trend in the loss ratios
..so that formula for s.d. needs to be adjusted

If there is an insurance cycle it is obscured by this trend (or, unlikely, there is an upwards trend of around 10 years as part of the cycle which is rather long)

More importantly, half of the company's business is in territories subject to earthquake and other catastrophic risk
... and the company has apparently been fortunate in not being hit by a catastrophic event in the 10 year period
... however, the probability of a catastrophic event (100-year?) has to be allowed for in the calculation of the VaR

The 2.807 multiplier is the correct confidence factor at 99.5% confidence level
...but for a 2-sided distribution: we are only interested in the downside risk so a 1-sided distribution would be more appropriate
...for which multiplier is 2.576 for 99.5%
... but the assumption of a normal distribution is invalid as the distribution is positively skewed
... and a much larger multiplier is required

Other factors to consider:

The capital required should not just be related to the confidence level but should be offset e.g. by expected profit and investment return
..and regulatory capital could well be different to theoretical capital
A straight average may not be appropriate e.g. could be weighted by volume of business
There may be a better measure of exposure than the premium used e.g. exposed to risk or sum insured
Overall business level may not be appropriate for the calculation: possibly should sub-divide e.g. by territory
Mix of business may be changing
Volume of business may be changing
Terms and conditions/ management expenses etc. may be changing

Combined ratio is usually claims incurred/earned premium + expenses/written premiums giving complications

The combined ratios must be estimates, particularly for more recent years, and therefore may be inaccurate.

Changes in reinsurance arrangements

The above is the underwriting risk: other risks should also be taken into account

Other risk examples

Any other generic points

Many candidates failed to relate their answers to the details given in the question, such as the increasing combined ratios, the relative stability of the ratios, the writing in catastrophe-exposed territories with only quota share reinsurance, the 2.807 standard deviations in the formula and the 10 rather than 9 used in the formula for σ . A few candidates stated that the combined ratios were very variable rather than the exact opposite applying in the circumstances. Some candidates got side-tracked into spending too much time on other risks.

- 4** (i) Determine the nature of the range required – a distribution of possible outcomes (rather than best estimates) is most appropriate for an ODP model
Collect data required namely claims triangles, selected development patterns and booked reserves.
Can be paid or incurred claims data
..but may be problems with incurred data because may be negative increments
- Data can be gross or net of reinsurance
.. but could be problems with net e.g. as may be distorted or may have negative increments
Segment data into homogeneous groups if not already done so
.. or combine if data in some reserve classes are too sparse for stochastic modelling.
Fit the distribution based on the incremental claims triangles
..so that the mean is equal to the booked reserve for each class of business
ODP distribution assumes variance is proportional to
..and greater than the mean.
Obtain the distribution around the ODP model by using the bootstrapping technique
..which involves calculating expected values and residuals for each point in the claims triangle
..resampling (with replacement)
..from residuals to obtain new triangle (pseudo-data)
..refitting the chain ladder model to the new triangle to obtain new reserve estimate
Repeat a large number of times
Correlations across multiple lines of business should be considered
..using methods such as copulas..
..in order to derive a range for the reserves at a total level.
Summarise results by recording mean/variance/percentiles
Any other generic points

Most candidates got the basics of describing the bootstrap but little else e.g. the data (paid/incurred, gross or net, negative increments etc.)

- (ii) Assumptions used in underwriting and reserving risk can be linked
 - ..such as common future claims inflation/ future loss ratios linked to past.
 - Explicit correlation factors between distributions...
 - ..such as defining a correlation matrix that links underwriting and reserving risk.
 - Correlations could be blocks or over years
 - Correlations could be by class between underwriting and reserving risks with higher correlation for non-catastrophe classes
 - Copulas could be best approach as dependency between risks likely to be complex
 - ..e.g. Gumbel copula that allows for stronger dependency in tail.
 - Implicit correlations may be in place between different scenarios in model
 - ..such as future tort reform worsening both reserves and future business *or other example*
 - Deterministic allowance for diversification unlikely given that stochastic model used

Those who knew the bookwork got some quick marks here although many did not answer the question set e.g. talking rather about allocating capital.

- 5**
- (i) New regulatory regime should be considered
 - .. it may prescribe particular rates, or means of calculation, that should be used
 - Purpose of the exercise – best estimate or more prudent discounting basis
 - Consistency with return on assets held by insurer
 - ..including if business written overseas where rates may be materially different

 - Allowance for level of tax/investment expenses incurred by company
 - ..and any non investible assets held by insurer.
 - Rates that are used by competitors for consistency
 - Term and nature of the liabilities by claim type
 - Any generic point related to motor

Generally reasonably answered although hardly anyone made reference to this being a new regulatory framework.

- (ii) Fully developed on a paid basis after 6 years (no tail required)
 - Yield curve is appropriate match by currency for the liabilities
 - Use paid development profile
 - Convert to percentages developed
 - Re-base profile for each underwriting year
 - Calculate assuming payments made half way through year

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Calculation:

Development Yr	0–1	1–2	2–3	3–4	4–5	5–6	6–7
Paid link ratios	5.000	2.165	2.825	1.825	1.285	1.095	1.000
Cumulative % developed	1.3%	6.4%	13.8%	38.9%	71.1%	91.3%	100.0%
Incremental % developed	1.3%	5.1%	7.4%	25.2%	32.1%	20.3%	8.7%
Outstanding at start of year		98.7%	93.6%	86.2%	61.1%	28.9%	8.7%

$$2009 \text{ uw yr: } 129.5 \times (32.1 \times 1.04^{-1/2} + 20.3 \times 1.04^{-1 1/2} + 8.7 \times 1.04^{-2 1/2}) / 61.1 = 124.0$$

$$2010 \text{ uw yr: } 215.5 \times (25.2 \times 1.04^{-1/2} + 32.1 \times 1.04^{-1 1/2} + 20.3 \times 1.04^{-2 1/2} + 8.7 \times 1.04^{-3 1/2}) / 86.2 = 202.2$$

$$2011 \text{ uw yr: } 306.0 \times (7.4 \times 1.04^{-1/2} + 25.2 \times 1.04^{-1 1/2} + 32.1 \times 1.04^{-2 1/2} + 20.3 \times 1.04^{-3 1/2} + 8.7 \times 1.04^{-4 1/2}) / 93.6 = 277.9$$

$$2012 \text{ uw yr: } 402.5 \times (5.1 \times 1.04^{-1/2} + 7.4 \times 1.04^{-1 1/2} + 25.2 \times 1.04^{-2 1/2} + 32.1 \times 1.04^{-3 1/2} + 20.3 \times 1.04^{-4 1/2} + 8.7 \times 1.04^{-5 1/2}) / 98.7 = 353.8$$

$$\text{Total discounted reserves} = 124.0 + 202.2 + 277.9 + 353.8 = 957.9$$

This is a fairly straightforward calculation but very few got it right and those that did produce correct (or nearly correct) solutions did tend to make heavy weather of it by making it over-complicated. A fair number of candidates assumed that the ratios given were cumulative while it should be clear they are not because the question refers to link ratios, the headings are 0–1, 1–2,... a comparison of paid and incurred ratios shows not possible e.g. paid/incurred 5.000 and 6.000 for 0–1 and 2.825 and 1.432 for 2–3 and also assuming cumulative for the paid ratios gives strange paid link ratios including a large negative one. A lot of incorrect methods were used such as using paid ratios for outstanding claims, incurred ratios for IBNR and also somehow trying to get ultimates and then work back. However, most of these methods did not get very far before the candidate gave up and there were a lot of no attempts at this part.

- (iii) Undiscounted reserves = 1053.5m
Discounted Reserves = 957.9m
Discount Factor = Discounted Reserves/Undiscounted Reserves =
 $957.9/1053.5 = 0.909252$
Discount Factor = $(1 + i)^{-DMT}$
Taking logs of both sides
 $\log(0.909252) = -DMT \times \log(1.04)$
DMT = 2.43 yrs (2 d.p)

This was very straightforward using just the answer given in part (iii) and the total reserve from the question but many did not attempt or tried to calculate using figures worked out (usually wrongly) in part (ii). In some cases they came up with answers that were obviously wrong without comment (e.g. greater than 7 years when the link ratios given are 1.000 for 6–7).

- (iv) Mixture of short term investments as match for damage claims
..with longer term investments as match for injury losses
If available, inflation related assets better match for liabilities..
..though claims inflation may be very different from published local indices (e.g. RPI / CPI)
May use structured settlements such as PPOs and/or purchases annuities where appropriate
Depending on currency of liabilities may need assets denominated in other currencies.
Generally less volatile assets such as government bonds more appropriate for matching liabilities
Only if sufficient free assets should assets such as equity and property be considered

Those who did best were those who related the assets to the those required for damage claims and those for injury claims rather than trying to match against the mean term from (iii).

- 6** (i) Employers'/workers' compensation
Public
Products
D&O
E&O
Environmental
Motor third-party
Marine
Aviation
Professional

Most candidates got full marks for this bookwork.

- (ii) *Liability*
Liability is insurance against the risk of being held legally liable to pay compensation to a third part
Claims are typically for property damage or bodily injury
For a claim to be payable the policyholder must show that the insured is liable
Amounts
The claim amount distribution is typically positively skewed
Depends on class e.g. for motor there may be small claims for property damage and large claims for bodily injury
Also, amounts may depend on the generosity or otherwise of arrangements for compensation in particular jurisdictions.

Delays

All of the following may take longer than for other classes e.g. for bodily injury claims

A delay between the incident occurring and the policyholder being aware of it

A delay between the insured becoming aware of the loss and reporting it

A delay before sufficient details of the incident can be gathered to assess the value of the claim

A delay until an injured party's condition stabilises to the extent that assessment of damages is appropriate

A delay in agreeing the actual value at which the claim is to be settled, and the payment of this amount to the insured

The amount of claim may be affected by considering whether there is contributory negligence

Latency

In particular some diseases may take more time to manifest themselves after they have been caused:

the classic example is mesothelioma, which may not begin until some decades after the causative exposure to asbestos.

Frequency

Depending on class there may be a large number of small claims and small number of large claims

There can be accumulation of claims e.g. for professional liability

Inflation

Claims may be subject to higher than standard measures of inflation

Other

The treatment of all aspects of liability claims differs more between different jurisdictions than is normal for other classes.

Claims may be contested in court. (This is true of all claims, but especially of liability)

This increases delays and affects amounts, frequency and inflation

Reasonably well answered in general. Several needed to say more than they did on latent claims such as what they are and the periods involved.

- (iii) Occurrence policies provide cover for all the losses that the insured has caused during the period of the policy.
Claims-made policies cover all those that were reported during the policy period.
This means that when the market moves to claims-made many of the losses that are reported will be covered under the old, occurrence, policies.
Claims that occurred under the old system will need to be excluded from the new;
in classes and jurisdictions much prone to latent claims this need for exclusion will last for a long time.
This means that early claims-made policies will have significant exclusions, and will be subject to substantial discounts on premium that will need to be withdrawn over time.
This means that the total income of the sector will be depressed, with implications for expense loadings and commission rates.

If the whole of the market does not change at once then policy exclusions will need to be drawn up individually for different insureds, with implications for underwriting procedures.

Claims-made policies will not provide cover for any losses reported after expiry date.

This will create a need for run-off policies.

For example, professional people who retire may still be sued for their actions while still in practice and will need this cover; policies will need to be developed to meet this need.

There will also be problems with businesses that are closed, become bankrupt or merge into others.

Because of these problems legal restrictions may be placed on the cover that may be offered

that may restrict insurers' ability to make this change fully.

Problems are created for pricing and reserving

in particular as the development period is much shorter for claims made than for occurrence.

May be problems with outwards reinsurance e.g. ensuring no gaps

Policyholder communication required e.g. to ensure they know what their coverage is

Policyholder protection e.g. to ensure that no lawsuits are brought in the future

This was in general poorly answered. A large number talked about possible gaps but they were missing the point that the main problem is overlap. Some mentioned overlap but very few realised that the way this problem is overcome is that for the new claims made policies (the first one being called a first-year claims made policy etc.) would not cover losses already covered by previous occurrence policies i.e. exclusions would apply/ there would be a retroactive date (as defined in the core reading). Later on there may be gaps e.g. professional persons will have to consider what insurance is available after they retire, but again not many mentioned this even when they said gaps were a problem. A lot of candidates talked about finding occurrence cover from another insurer but the question does suggest that the whole market is now changing to claims made for the type of liability insurance being considered which is logical as there being the two different bases in the same market would be impractical. A particular real-life example is when the whole US medical malpractice market changed from occurrence to claims made a few years ago. One minor point: defining claims insurance made as being for those claims made in the policy period is a tautology not a definition.

- 7** (i) The changes will affect the development patterns of incurred claims that make up the data triangles that the reserving actuary is likely to use in reserving.
- Assuming that annual or quarterly triangles are used, only the last diagonal of the incurred triangle will be affected:
- it seems reasonable to assume that the payment of claims will not be affected by the change.
- If the actuary uses the incurred chain-ladder method or the incurred Bornhuetter-Ferguson method to project ultimate claims then using the last

diagonal will give inappropriate results since the values projected from are not in keeping with the patterns of development inherent in the rest of the triangles.

- (ii) One approach to reserving in these circumstances is to use only methods based on paid claims.

Or to put more weight on paid-claim development.

This should lead to appropriate results, but in some classes the development of paid claims may be so slow that recent years' results are not reliable; this is likely to be especially true of the liability classes.

Also, if incurred methods have typically been used in the past but are now abandoned then it may not be easy to assess the effects of this change.

Finally, it is undesirable wholly to ignore the information available in the outstanding claims.

If the actuary wishes to continue to use the incurred claims, either for selecting ultimate claims or for comparative purposes, then it is necessary to understand the effects of the changes.

Should talk with the claims manager and other stakeholders

.. and compare the new instruction manual with previous instructions

.. to see if possible to do a what-if analysis.

Comparing the new policy to the old may give some indication of the extent and direction of the likely changes to reserves as a result of the change in policy

– these effects need not be straightforwardly positive or negative.

About a quarter of old claims are likely to have been amended by the valuation date –

the actuary could analyse the extent of increases and reductions.

Such an analysis may enable him to adjust the last diagonal of the incurred claims

so that it is consistent with the interior of the triangle.

If triangles of numbers of claims outstanding are available

then the actuary can calculate a triangle of average outstanding claim amounts.

If past reserving has been consistent

then all the values in each column of the triangle (with claims as single development periods) should be roughly equal,

or at least affected only by inflation and random variation.

The extent to which the latest entry is out of line with the trend of those before it may indicate the effect of the changes and provide a basis for adjustment.

Granularity should be considered; sub-dividing the classes of data by type of claim may allow greater insight

Other possible approaches include the use of benchmarks,

if the new policy is reasonably close to general market practice,

and projecting the ultimate claims from the penultimate diagonal.

The latter has the problem of ignoring actual development in the most-recent year.

An inflation adjusted methodology may assist in identifying differences caused by the new process

Also, could adjust all past history to be on same basis as new process
This is initially more complex but has the advantage that for future valuations the data is already there and becoming more relevant
This is the Berquist Sherman method of adjusting historical development for changes in case reserving.
In the following financial year all outstanding claims will have been set under the new policy.
However, as the previous diagonal was a mixture of policies it is the only one that will have been.
It may still be adjusted, but as two diagonals will now need adjustment the result of the reserving exercise may be very sensitive to the actuary's adjustments.
As the years go by there will be more diagonals on the new basis and it will be appropriate to use them to estimate development factors.
Any operational point, e.g. peer review
The process should be monitored over time so that the methodology can be adapted appropriately
Generic points on keeping the process of case reserving accurate

There was a lot of overlap between the answers given for parts (i) and (ii) of this question which was allowed for when marking. This was a very poorly answered question. In part (ii) candidates are asked to suggest steps to keep the process as accurate as possible, with the process intended to be the actuarial reserving process. However, some candidates assumed it meant the case reserve revision process. Some marks were made available for suggestions on making the case reserving revision process accurate but the majority of candidates did concentrate on the actuarial reserving process. In general attempts were poor with few practical suggestions and insufficient detail for anywhere near 15 marks. Many candidates failed to realise that incurred claims development would be affected but not paid claims and that consequently methods based on paid claims should be considered thereby losing several available marks. Also candidates often only considered the first year and not subsequent years as requested,

- 8** The prime objective in the investment of assets is to maximise investment return, subject to meeting all contractual obligations and recognising the uncertainty involved.
This company, although solvent, is unlikely to have large amounts of free assets, since otherwise it would be unlikely to have been closed.
This means that there is not likely to be a great deal of freedom to invest adventurously,
The company will need to make a projection of its liability outgo to extinction and ideally it ought to invest in assets that match it reasonably closely.
This matching will need to be done by term and by currency, although it is possible that a small company may have assets and liabilities all in a single currency.
However, the company has only recently closed to business; for some months at least it may have exposure to property catastrophes, for which a degree of liquidity is required.
There will be no premium income going forward so a greater need for liquidity.

..although as has just gone into run-off there will be some premium income in the short term

There may be some regulatory constraints on a company in run-off which are likely to be more stringent than for an on-going company

The constraints will likely be exacerbated as this is a small company

Expenses will be more significant in run-off including redundancy costs increasing the need for liquidity.

There may be a need for more cash to be held for liquidity

..although possibly reduced as in run-off less expectation of spikes from catastrophes

The amount held in non-investible assets should be considered (any examples)

Also any credit facilities being used should be considered as will reduce need for liquidity

In addition, a company in this situation is usually looking for opportunities to commute its liabilities favourably,

and to take advantage of any such opportunities it may need to be able to liquidate assets quickly.

The desirability of liquidity suggests that it may be appropriate to invest at a shorter term than matching would imply.

The company's liabilities are almost all real in nature/affected by inflation, even if all the payments are affected by a number of different inflation rates.

The liability claims may take more than ten years to settle, and possibly much longer if there are likely to be latent claims.

This argues for a hedge against inflation in its investment selection.

Depending on the local valuation rules there may be a need to avoid excessive volatility.

For example, if reserves are valued on an undiscounted basis and assets at market value and if interest rates rise then there is a possibility that the company might become insolvent even if its projected asset income fully covered its liability outgo at all times.

The need to avoid volatility in the value of assets means that the company will need to avoid investing in equities.

It will also be impossible to match the term of assets to liabilities using equities.

This is despite the fact that equities provide a hedge, albeit an imperfect one, against inflation.

If the liability account does include some extremely long-tailed claims, such as latent disease, the need for a long-term hedge might outweigh these considerations.

The desire to maximise investment income argues for the inclusion of some high-grade corporate bonds in the portfolio.

The need for liquidity argues for the use of government securities to match the projected outgo.

It also argues for the use of earlier maturities than would match the projected outgo.

The need to remain solvent on particular accounting rules may also argue for investing shorter than the term of the expected liability outgo.

Index-linked stocks may suit all purposes, including hedging against inflation, but they are not available in all jurisdictions and often only for government bonds, which is likely to reduce yield.

The price of these may also be prohibitive

particularly if pushed up by pension-fund investors.

The assets currently held are important.

If the company has substantial equity holdings as currently matched assuming future new business and/or because the company was growing then a disinvestment strategy will need to be considered.

Timing will need to be considered as to how long it should take to get to a desirable portfolio.

It may need to consider trigger points for when to disinvest from equities.

Outwards reinsurance is important

...this will affect the volatility with stop-loss if available being particularly effective in reducing volatility and the need for liquidity

Tax will need to be considered.

E.g. as just gone into run-off likely to have tax losses brought forward

In summary:

the portfolio is likely to include high-quality corporate bonds and government stock,

invested slightly shorter than the expected liability outgo, with a proportion of index-linked stock if available.

Equities are unlikely to be an appropriate part of the portfolio, although it is not impossible.

Generally reasonably well answered. The main failure was in not relating the answer to the specifics given in the question, e.g. suggesting using equity and sometimes property investment which are of course inappropriate as it is both a small company and in run-off. Also many did discuss the considerations to be made but were unclear in suggesting appropriate investment types. Some candidates stated that expenses would be reducing thereby missing the point that expenses would be more significant in run-off. Also, what competitors are doing is unlikely to be relevant as in run-off the company is not competing.

END OF EXAMINERS' REPORT