# EXAMINATIONS

September 2004

## Subject 403— UK Fellowship General Insurance

## Paper One

EXAMINERS' REPORT

Introduction

The attached subject report has been written by the Principal Examiner with the aim of helping candidates. The questions and comments are based around Core Reading as the interpretation of the syllabus to which the examiners are working. They have however given credit for any alternative approach or interpretation which they consider to be reasonable.

M Flaherty
Chairman of the Board of Examiners

7 December 2004

**1** *In part (a) many candidates talked generally about discounting and credit was given for appropriate comments. In general the answers given failed to record enough points to gain sufficient marks on this question.*

(a) Whether this is true or not depends on the valuation basis, i.e. statutory solvency compared to a best estimate valuation basis.

Also on whether the company discounts its liabilities.

If this is a best estimate basis and the liabilities are discounted then the statement is false.

However, if there are hedging instruments or indexed linked liabilities then the statement could be true

If the basis is a statutory one where the liabilities are not discounted then any changes in interest rates may not affect the solvency position.

(b) Short term gilts are close to cash and their value is mostly determined by the maturity value.

Hence values are stable.

Capital values of UK equities are determined by many things such as present and future dividend income (which is likely to reflect earnings and profits), market sentiment, volumes traded, economic data and show considerable volatility.

(c) The general view is that it is safest to hold 2 × SMR in short dated gilts as these offer both security and low volatility of capital values.

Any excess should be invested to produce good long term return, although it may depend upon the purpose of holding free reserves.

Given the company is well capitalised it is likely that there will be excess free reserves.

Assets chosen for this will depend on the size of the reserve but should include UK and overseas equities and direct investment in property if it is possible to build a diversified portfolio.

(d) The investment income from index-linked gilts will increase in line with the retail price index (RPI).

For equities the income stream is the dividends, these often grow at a greater rate than RPI.

However this is not always the case and there have been periods where many companies have cut dividend income.

Dividends are determined by many things such as corporate profits and economic outlook and could be very different to inflation / RPI.

The growth in investment income may depend upon the type of equities e.g. if equities are for dividend income or growth in value.

**2** *Most candidates could not identify the differences between these 2 guidance notes. Those that did attempt this question failed to get more than one of the differences indicated below.*

| *GN18* | *GN33* |
|---|---|
| • Recommended practice | • Practice standard |
| • For UK General Ins Co's writing US regulated business | • For Lloyd's syndicates writing US Business |
| • Technical provisions/reserves "bear an appropriate relationship" to those calculated by the signing actuary | • Reserves need to be "at least as large" as best estimate |
| • Actuary not required to make adjs to reserves for events after valuation date | • Actuary must make adjs to reserves for events occurring between valuation date and date of signing opinion |
| • Reserves may be discounted as long as details disclosed | • Reserves not discounted |
| • SAO (net) worldwide reserves | • SAO (gross and net) worldwide reserves / (gross) surplus lines trust funds |

**3** *This question was generally well answered with many candidates scoring well over half marks.*

(i) Required Minimum Margin

The minimum capital requirement is calculated as a proportion of the business written….
….based either on premiums received or on claims incurred

A third basis, based on reserves brought forward, will be available from 2004.

Risk Based Capital

RBC considers the risk profile of the business written.

E.g. volatility of past profits
the growth of the business
the direction and volatility of past reserve development
and the quality and diversification of asset holdings

Reinsurance allowed for in both

Reinsurers' security allowed for in RBC

(ii) RBC recognises inherent volatility in the business.

It penalises companies that hold inadequate reserves
whereas RMM assessment is lower where under-reserving or inadequate premium rating

RMM assessment is the same regardless of assets held
but RBC can penalise the holding of risky or inappropriate assets

RBC recognises credit risk and operational risk

**4** *This question aimed to test candidates to consider appropriate risk factors for a non-standard class of business. Most candidates showed a reasonable ability to apply knowledge to this class of business with some candidates scoring almost maximum marks.*

Change in numbers of pupils — could be large expansion of school price needs to reflect (also pos. knock on effect of teaching strain).

Need to consider if scheme is compulsory or optional, if optional

Failure rate change — anti selection (all buy policy or just dodgy)

Change in profile of students staying with new scheme offered

No parental pressure if no financial stake perhaps
also pressure/encouragement from teachers also reduced for this.

Fees — could change in structure and amount

Exam changes — difficulty of exam and/or required standard for pass.

Number of exams taken per student

Actual subjects taken as different ones may have different pass rates

Policy wording – e.g. definition of school fees

Moral hazard – e.g. deliberate non achievement of top grades as get into university anyway

Concentration of risk

Quality of teaching / including teacher turnover and quality of materials

Teacher turnover

Entry requirements

**5** *Credit was given in part (i) for solutions which assumed a different assumption about pattern of writing of business. Most candidates scored well in part (i) with the main mistake being mis-reading one of the numbers in the question. Surprisingly several candidates in part (ii) produced the correct method but could not sum the written premium given in the question.*

(i) 24ths method.
Incept uniformly over the month.
Earn evenly over year.
No commission
No cancellations
No UPR brought forward.
48*1/24+7/24*24+13/24*36+19/24*12 = 912/24 = 38.0
48*25/48+24*29/48+24*35/48+12*39/48+12*43/48 = 4092/48 = 77.5
hence UPR = 115.5

(ii) RAD covers risk attaching to that policy year i.e. earns in the same proportion as the underlying so calculation of unearned above as proportion of written will be same for RI premium unearned. That is to say (115.4/240)*100 = 48

LOD must cover a loss that occurred in the policy period so the loss will have occurred (if not reported) so fully earned, and hence unearned is 0.

Assume both are 1 year reinsurance programs

(iii) Non-uniform exposure, earning must reflect that.

So need to calculate the exposure in risk period gone and to come to split.

**6** *There was a good range of answers to this question with the better candidates demonstrating that they knew the steps involved in checking that risk premiums had been calculated correctly. Some candidates however concentrated their solutions on only the data issues and hence missed out on several of the other points.*

Check for completeness of the data e.g. Raw claims and policy data reconciles with the accounting information

High level checks of frequency and average cost over periods of time

Compare data with that used in a previous review

Check that claims have attached correctly to the policy data.

Check that data hasn't been corrupted in the cleaning process / 1 way tables by rating factors

Check that the data has then fed through correctly into any rating software packages

Reconcile any adjustments for IBNR and IBNER with figures produced by the claims reserving departments

Check that frequency and average cost models combine correctly and that all claim causes are included

Check that frequency, inflation or any other trends have been projected to the expected claims payment dates for the new rating series.

Comparison of risk premium rates with a previous analysis.

Adjustment made to allow for new rating factors have been made on a consistent basis across each peril

Check that appropriate allowance has been made for individual large claims and accumulations

Obtain sample quotes for new business and renewals

As you are a consulting actuary, you are likely to have information regarding competitors risk premium and therefore check against this

Gross up risk premium for general level of expenses etc. and compare with office premium of competitors

Check that no non-household contents data included (e.g. where combined buildings and contents business)

Recent and appropriate data has been used

Credibility of data in cells and homogeneity within cells

Check suitability of model including appropriate rating cells

Check that the increases in risk premiums look reasonable by comparing with recent years loss ratios

**7.** *Many candidates showed a good knowledge of the risks facing the insurer in this situation and hence gained good marks. In part (ii) there were also some very good answers given demonstrating candidates understanding of the difference between transfer of portfolio and ADC.*

(i) **Unexpired Risk**

Premiums are inadequate to cover the claims & expenses and hence fail to meet the required contribution to profit

**Claims Reserves**

If the reserves held are too high or too low this will eventually feed through to the balance sheet as a run off profit or loss.

This could be caused by a number of things:

Claims reporting, payment patterns are different in the future compared with the past which has led to an inaccurate reserve estimate from the triangulations

Pending court case which could go against the company. Worst case scenario is not reserved for.

Error in the previous calculations

Court award inflation is different to that predicted, possibly caused by a change in legislation or a judicial decision which gives rise to more claims.

Medical advancements may lead to greater costs

Changing attitudes of policyholders to claims could lead to late claims emerging

The distribution of large claims turns out to be different to expected

Claims handling expenses are higher than expected

Risk of reinsurer default

Reinsurance purchase is difficult

Loss of package business
Brokers increase terms for remaining business

If policies are written in overseas currency you may have a currency risk

Latent claims may arise that you had not envisaged or reserved for.

Asbestos claims experience may deteriorate

Claims arising owing to different interpretation of wording in policy documents

Accumulation of claims

Claims inflation not as expected

Future commutations higher than reserves

**Investments**

The reserves that will be required will be fairly large because of the tail. The insurer runs a risk that the investment returns assumed are not achieved for a number of reasons such as:

It will probably not have been possible to match all of the liabilities with appropriate assets so there is the risk of mismatching

Unfavourable market conditions and an excess of claims over reserves may lead to assets being realised at unfavourable times

Timing of claims payments may not be as expected

Poor investment management

Poor security of the assets

Changes in relativities of non-investible funds

**Other Risks**

Failure of brokers or other 3rd parties to repay their balances

Accounting changes

Tax

Run-off of expenses greater than expected

Legislation changes (including investment regs)

Effect upon credit rating of ceasing to write this COB – loss of other business

Change in allocation of expenses between classes affecting profitability of this class

General operational risk e.g. fraud and staff embezzlement

Shareholders demand capital back

(ii) (a) Transfer of portfolio

Transfer the reserves and the remaining exposure to a third party. It is likely that there will be a premium in addition to the existing reserves. This would normally include a claims handling service.

All adverse claims risks and the investment income will be passed to a third party.

As reserves are transferred, there will be no investment income from these reserves to help with cashflows.

Assets may need to be realised to pass across the value of the reserves to a third party which is particularly important if there is mismatching or if tax gains/ losses would be crystallised.

Insurer can concentrate on rest of book of business

Third party gains diversification if not already in this area

Could improve credit rating of insurer

Third party defaults could have bad reputation on insurer

Third party achieves larger client database

Strain on resource for third party

Need for communication with policyholders

Requires reinsurer buy-in for transfer of portfolio

Specialist players in market that can run-off more profitable than insurer

The cost to the insurer to remove the risk would be any premium payable plus the "lost" investment income. The cost depends on the current risk appetite of the market.

(b) Adverse Development cover

Usually it is only possible to reinsure a layer above a specified amount. This specified amount may be in excess of the current level of reserves. There could be an upper limit and if the ultimate cost of losses is in excess of this then the risk returns to the insurer.

The reinsurer may also insist in a small participation by the insurer in the layer

A premium is payable for the cover. Again cost depends on the risk appetite of the market

Claims are usually still handled by the insurer and hence there are the associated expenses.

Reserves are maintained by the insurer and they receive all investment income generated from the investments backing these reserves

Reinsurer default falls back onto insurer

Some but not all of the risk from adverse run-off of the reserves is removed.

**8** *Part (ii) of this question seemed to cause a lot of problems to candidates with some candidates stating that the SM was zero because the total value of liabilities equalled the total value of the assets. In part (iv) some candidates made general comments about risk and uncertainty and credit was given where appropriate, although candidates had to mention the particular areas of risk and uncertainty to gain many marks. Most candidates did not mention more than just of the few points in part (iv) which the examiners were looking for.*

(i) The excess of the value of an insurer's assets over its technical reserves and current liabilities.

Sometimes, in the case of a proprietary insurer, referred to as shareholders' funds or net asset value.

(ii) Undiscounted basis: reduce by net value of discount adjs
i.e. 92.8 – (18.7 – 2.8) = 76.9

Discounted basis: take total capital & reserves
i.e. 35.0 + 10.0 + 47.8 = 92.8

(iii) Buyer will want risk margin for uncertainty of claims outcome

May want to use a different discount rate

Buyer wants a good deal and wants decent return on capital

….And /or seller is forced to sell at low value

Buyer knows that there is unrecognised discount value in respect of non-APH

(Asbestos, Pollution and Health) liabilities

Will need to allow for costs of sale transaction

May have different view of best estimate reserves
…particularly for the asbestos claims

Different view of payment patterns

May plan to extinguish liabilities more quickly…
…e.g. via commutations, scheme
…hence claims handling reserve, claims reserve and discount adjustments may each be inappropriate

Actual transfer won't be at 31 December 2003 hence adjustment for changes since then

May have plans to make staff redundant so may allow for those costs

May have different view of asset value e.g. land & buildings
May have different view regarding debtors

(iv) Business in run-off for 9 years therefore all claims outstanding are long tail in nature with liability elements
and timing and amount of future payments is very uncertain

Possibility of latent claims

Claims may run-off much more poorly than expected

Would need to be deterioration of about 50% to threaten actual solvency

Although statutory/ management's required solvency level would be threatened before this level of deterioration

Discount on APH reserves is significant ⇒ exposure to asbestos and pollution is material

US Asbestos liabilities are likely to be most uncertain and a 50% deterioration is not impossible

Company wrote reinsurance marine and aviation risks and was likely to be exposed to major catastrophes

Although the company may have reinsurance for these losses, there may be gaps in cover…

…through vertical or horizontal exhaustion, partly placed covers and/or commuted outwards reinsurance

There may be unresolved market coverages issues on some of these losses….
….difficult to estimate liabilities where data distorted due to slowdown in payments
….and exposed to court case decisions

An economic downturn for a closed company could be worse than for a continuing company in respect of policyholders attitude to claiming

Asset risks are significant

As high exposure to equities and gilts which have volatile market values

If inappropriately matched to liabilities, could have liquidity problems

Although bad debt amounts on balance sheet appear small, reinsurance assets are quite large and therefore the risk of reinsurers disputing liability or being unable to pay due to insolvency is significant.

Company wrote international risks so likely that liabilities in different currencies and company exposed to weakening of domestic currency

This is a particular risk if the equities and government bonds are domestic assets

(v) Would generally expect the solvency margin to increase over time with an increase in those assets not backing the technical reserves

Although sensitive to market value of assets, which could go up or down

For example, if interest rates go up, value of fixed interest bonds likely to fall

Also depends on how realistic is the discount rate of 5%

If realistic, given the claims experience is as expected, then the unwinding of the discount rate on discounted reserves should be equal to increase in assets backing those reserves (so reduction in discount offsets increase in assets)

If assets earn less than 5%, then value of discount written off in respect of asbestos and pollution liabilities will be greater than increase in assets and solvency margin may fall (and vice versa)

Liabilities are also only partially discounted

Income will be earned on assets backing non-APH liabilities
…including claims handling reserve, assuming this is not already discounted
and this will be accounted for as run-off surplus and hence increase to solvency margin

The solvency margin will be affected if the company changes its view on the payment of dividends. If the run-off surplus is used for dividend payments then the solvency margin may not increase.

**END OF EXAMINERS' REPORT**