EXAMINATIONS

September 1998

Subject G — General Insurance

Paper One

EXAMINERS' REPORT

Comment

Reasonable answers were given to the majority of the questions. The poor performing candidates were generally those who did not give the full answers required. For question 23(i) and (iii) very few candidates were able to set out a full solution

1 Claim frequency = $f * \int_{0.25m}^{\infty} g(x)\,dx \,/ \int_{0}^{\infty} g(x)\,dx$

Average cost per claim = $\dfrac{\int_{0.25m}^{1.25m}(x-0.25m)\,g(x)\,dx + \int_{1.25m}^{\infty} 1m * g(x)\,dx}{\int_{0.25m}^{\infty} g(x)\,dx}$

2 *Sum Insured
and/or
*Number of bedrooms (or number of rooms)
*Location (usually based on the postcode)
Excess

NCD
Owner occupied or rented
Occupancy during the day
*Type of property
Type and standard of construction
Age of property
Fitted with locks or alarms
Age of policyholder
whether property is used for business use
Cover

3 Council - governing body responsible for the overall direction of the society. Comprises 6 working members, 6 external members, and 6 nominated members whose appointment must be confirmed by the governor of the Bank of England. 1 of the nominated members is the chief executive.

Central Fund - contingency reserve built up by contributions by Lloyd's Names. Held as a layer of protection for policyholders.

Managing Agent - A company appointed to manage the affairs of an underwriting syndicate, appoint the underwriter, and provide technical and administrative services.

Lloyd's deposit - wholly owned non-assigned assets which must be lodged in trust with the committee of Lloyd's before a member can write any business. The amount of the deposit together with the Name's means if they are an individual, or their capital if they are incorporated names, determines the maximum amount of premium income which may be written on their behalf.

4 The MIB consists of almost all insurance companies & Lloyds' syndicates, who write motor business in the UK.
The MIB is set up to meet the legitimate claims of third parties,
relating to liabilities covered by the Road Traffic Act,
where the third party cannot make a recovery from an insurer
because the driver is uninsured or untraced.
If untraced, the payments are limited to non-property damage.
The cost of claims is financed by a levy.
Compiles statistics
Administers green card system.

5 Policies grouped by inception date being in relevant accounting period, usually 1 year.

All exposure regardless of whether it takes place during the accounting period is considered for this policy group.

Hence no separate URR or UPR is required.

If policy term is long then exposure being included may be for many years after the accounting period ends.

All income and expenditure is linked to the period covered by the inception date based grouping.

No profit is released for 2 or 3 years.

Deficits are funded when recognised.

In Lloyd's after a period, usually three full years, a funded year is closed and profit assessed.

In company accounts funded business is not usually closed and the projections of ultimate profit become more accurate through time as business runs off.

6 Involvement of third party complicates process
Determination of liability is more contentious in L than P.
Latent claims in Liability
Property losses are generally more immediately apparent,
and can be valued deterministically by an assessor
Liability is more likely to lead to litigation

7 Formal reports on the adequacy of reserves
or the financial soundness
of a general insurer,
including a Lloyd's syndicate,
whether as a consultant or an employee.

8 Capacity of the system
Cost of the storage
Amount of data stored
Level of detail at which it is stored
Minimising input errors
Training requirements, ease of use, integration, security, flexibility, timescales

9 UPR - the amount set aside from premiums written before the accounting date to cover risks borne after that date.

URR - the reserve required to cover claims and expenses that are expected to emerge from unexpired periods of cover.

URR may be greater than UPR if it emerges that the policies were written at inadequate rates and therefore additional reserves need to be set up.

10 Density function is Poisson
as the frequency is very low
and the chances of two together is remote.

$$p(n = t) = \frac{\lambda^t e^{-\lambda}}{t!}$$

Density function is Log Normal
which is useful when modelling a quantity which is in itself a summation of quantities
which are randomly distributed as for each individual building insurance claim.

$$f(x) = \frac{1}{\sqrt{2\Pi\sigma^2}} \frac{\exp(-[\ln(x) - \mu]^2)}{2\sigma^2}$$

Other reasonable distributions were acceptable.

11 Employers Liability (min £2 million per event)

Public Motor - 3rd party
unlimited personal injury
£0.25m property damage
Horse riding establishments
Nuclear Installations

12 Definition

Premiums due but yet to be received by an insurance company, usually already paid by the insured but in transit via insurance brokers.

Requirements

Max of 30% of net premium income applies to net outstanding premiums, which includes Agents' Balances.

Reasons

To limit solvency reliance on a large concentration of such premiums which are largely outside the control of the insurance company.

Such funds do not aid liquidity and may reduce the company's ability to pay claims.

These funds may become bad debts or be fraudulently diverted, again damaging the insurance company's ability to pay claims.

13 Worldwide solvency margin requirement for U.K companies.
U.K company supervised in the U.K. for U.K. and overseas business.
A company with a head office elsewhere in the EU is supervised in its home country.
A company external to the EU maintains surplus assets,
which can vary according to circumstances.

14 Set new precedents for admission of claims
New levels of award for existing categories of claims
Increase average amount for reported claims,
but harder to allow for this type of inflation .
Judicial decisions may confer cover where insurer did not intend to grant it possibly because of imprecise policy wordings

15 To limit the effect of a catastrophe or aggregate loss
Return commission
Reduce exposure when new market or area
Stabilise results
Spread risks
Reciprocity
Supervisory requirement
Technical assistance
Write large risks
Protect solvency margin
Reduce SMSM
Take advantage of low priced reinsurance
Investment freedom
Financial v/i to manage balance sheet.

16 The base data may be in respect of unusually heavy (or light) experience and therefore may need to be adjusted for the expected level.

The base data may contain individual large claims, which would either need to be left in the data, truncated and excess spread or removed as considered appropriate for the new period.

The base data may contain an unusually small number of large claims and therefore some addition would need to be made.

The data may contain trends (e.g. inflation), consideration needs to be given as to whether the trends should be extrapolated.

Some trends may be due to changes in underwriting, administration systems, risk and/ or cover.

17 Profitability is low
Insurers may leave the market
or have reduced involvement in a particular class of business
Loss of business affects ability to cover fixed expenses,
and future growth prospects
Solvency margin may reduce,
requiring additional capital support from other activities.
Failure of Reinsurers

18 (a) Both methods: that risk arising from the policy is even over the course of the year.

8ths method: that policies incept uniformly over the course of each quarter.

24th method: that policies incept uniformly over the course of each month.

(b) Much commercial business: inception dates commonly at start of quarter.

Property business in catastrophe-prone areas: seasonal incidence categories.

Reinsurance business: risks attaching means increasing then decreasing incidence of risk.
Non-annual policies: need for earning over a different period.

Annual travel policies: incidence of risk in travel seasons.

19 Three key principles
Does not prescribe assets which are to be held (unlike some other countries)
Ensures no undue concentration by limiting amounts which can be counted for solvency purposes

Ensures some currency and country matching through localisation reqs

20 Claims data is analysed for a variety of reasons, including:

estimating the cost of outstanding claims to set reserves
monitoring the run-off of outstanding claims against estimated amounts
monitoring the adequacy and use of reinsurance
comparing the relative profitability of various parts of the account
reviewing present premium rates, and for pricing new or amended products

exposure data is needed for comparison against the claims data and may be in the form of premiums, policies or other units of exposure
Investment policy making
Monitoring concentration or aggregations.

21 A to C £1.5m
B to C £1.5m
B to A £0.5m

22 Revenue Account

Ref	Entry	Derivation	Description
1	UPR b/f		Unearned Premium reserve brought fwd
2	WP		Written premium net of R/I in the period
3	UPR c/f		Unearned Premium reserve carried fwd
4	EP	(1)+(2)–(3)	Net earned premium (above net of deferred acquisition costs)
5	O/S claims b/f		Outstanding claims reserves b/f
6	Paid claims		claims net of R/I paid in the period
7	O/S claims c/f		Outstanding claims reserves c/f
8	Incurred claims	(6)+(7)–(5)	Incurred cost in the period

Description of elements of the O/S claims (IBNR, notified, number of claims handled etc.)

Ref	Entry	Derivation	Description
9	Expenses		Net (Acquisition, Renewal, Claims & overheads)
10	Commission		net paid (policy, profit, overrider)
11	U/W Profit	(4)–[(8)+(9)+(10)]	Underwriting Profit
12	Investment Income		Investment Income on Tech Reserves
13	Insurance profit	(11)+(12)	

23 (i) **Claims**

- Lack of previous experience of the risks concerned
- Variability of experience
- Changing types of business
- Changing underlying risk characteristics
- Changing attitudes of policyholders to claiming
- Anti-selection by policyholders
- Economic deterioration
- Random climatic effects
- Occurrence of catastrophes
- A new type of claim which had not been anticipated
- Insufficient allowance for the effects of future inflation
- Changes in legislation or court decisions setting new precedents
- Poor management control over underwriting and claims settlements
- Failure to recover R/I or third party recoveries
- Changing policy holder attitudes to claims.

Expenses

- Higher than expected inflation on costs
- Increased legal and professional charges
- Lower level of business than required to cover fixed expenses

- Costs related to a need to obtain more new business than anticipated
- Unexpectedly heavy expenses such as new systems or legislative changes
- Unexpected one-off expenses such as a levy under the PPA
- Poor management
- Catastrophe leading to higher expenses

Commission

- Commission should automatically be met by loadings in the premium basis
- It may be necessary to increase commission above normal level to attract better business
- Or retain business
- This action could attract worse business from intermediaries
- Unless brokers are carefully selected
- Change in mix by intermediary
- Where different commission terms exist

Investment Return

- Credit is taken in premium basis for expected investment return

Return may not be achieved because of:

- Adverse market conditions
- Larger than expected portion of assets not available for investment
- Payment of claims sooner than expected
- Need to realise unmatched assets in unfavourable conditions
- Poor investment management
- Taxation changes
- Reinsurers slow in payment
- Currency mismatching

(ii)

- Impact on future new business
- Investment strategy, returns, movements in asset values
- Cash flow impact on writing particular types of business
- Effect of reserving requirements
- Capital that is implicitly tied up in writing the business
- Rate of return that can be expected on that capital
- Uncertainty underlying any cashflow
- Robustness of the premium rates
- Inflation of claims and expenses

(iii)

- Relative size of the new premiums
- Market rank of the premiums
- Size of the increases imminent renewals will face
- Previous changes to volumes following changes in premiums

- Volumes of business written by different insurers with different premium rate rankings
- Views of underwriters as to the sensitivity of the market to premium rates
- Comparison with general economic circumstances at previous rate change
- Extent to which policyholders' choices are affected by rate changes
- Efficiency of the market for the class of business
- Reputation of insurer in market place
- Loyalty between policyholder and insurer
- Competitors' expected increases by time and amount
- For direct selling, introduce new rates for sample of proposers and observe result
- Effect of rate change on other insurers' rates
- Price elasticity by channel.