EXAMINATIONS

September 2002

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 examiners are mindful that a number of interpretations may be drawn from the syllabus and Core Reading. 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.

The report does not attempt to offer a specimen solution for each question — that is, a solution that a well prepared candidate might have produced in the time allowed. For most questions substantially more detail is given than would normally be necessary to obtain a clear pass. There can also be valid alternatives which would gain equal marks.

K Forman
Chairman of the Board of Examiners

26 November 2002

1 *Most candidates failed to get more than a few of the points which the examiners were looking for.*

If using case estimates without adjustment then no change in analysis.
However, if using triangles then the effect to some extent depends on whether the large losses are taken out of the triangles, capped or left in.

Incurred triangles — (paid + case estimates) will have a faster development

The view taken on how many losses might develop in the future into large losses may need to change

Paid development triangles will change in the future if claims experience does improve for these large losses —
If claims are settled at a faster rate then the payment triangles will be affected.

Need to try and get an understanding of the changes
- how much quicker are large claims being identified?
- how is the incurred development likely to change compared with the current situation?
- what is the likely size of the potential saving?

Reduction in claims handling cost

2 *There was a wide range in the number of marks gained on this question with the better candidates demonstrating the uncertainties underlying the liabilities. Some candidates mainly mentioned the liabilities which was the answer to a question set in a previous exam.*

Assumptions used to set reserves are subject to uncertainty

Reliability of the data
Particularly size of initial advance, LTV and current status of the mortgage

Changing attitude of the lender towards arrears management and speed of repossession

Size of the claim is unknown, dependent on the housing market.

Frequency of claims is dependent on the economy and the housing market

Notification of claims and IBNR — reliability and speed of the information provided from the bank and the building societies

Unexpired risk — it is difficult to assess the amount of the unexpired risk.
The premium is paid up front as a Single premium, for cover which lasts for up to 25 years

Premium is usually earned over a 7–10 year period, but it is not an even earnings pattern.

There is large uncertainty over the earnings pattern — need to consider future interest rates and the house market of the previous few years and for the next few years, together with the past history of the incidence of claims over the lifetime of policies.

Risk that there will be legislative changes that affect the incidence of claims.

Reinsurance — if any is in place, then there is the uncertainty over the collection of reinsurance recoveries.

As the class of business is small, it may be thought that the uncertainty is unlikely to be material in the context of the overall liabilities of this insurer, but in fact it is.

3 *This bookwork question caused very few problems.*

carried back and set against the previous year's profit
carried forward and set against future trading profits
surrendered to other companies in the same UK tax group and offset by those companies against their taxable profits.

4 *Many candidates concentrated on the aspects of expenses of the alternative covers and did not mention the effect of possible claims scenarios.*

Less expensive, probably

- Less cover. Consider 6 losses of 400,000 from ground up under each scenario. Each of the six losses would recover 300,000 with a 900,000 xs 100,000 layer with one reinstatement. With 3 layers only the first two losses would receive 300,000 after which the 300,000 xs 100,000 layer with one reinstatement would be exhausted. It would not be possible to recover anything on the remaining four losses.

- May be specialist underwriters in the market who prefer to write at certain levels. The greater capacity available should drive down prices.

- Expense allowances could have an impact.

5 *Most candidates recognised the non-uniform pattern of risk for this type of insurance and therefore scored well on this question.*

(i) Generally a multiyear contract paid for by a single premium,
therefore most significant reserve will be UPR and possible URR if the business was not priced correctly.

Reported and IBNR outstanding claims will be very low as claims are reported and repairs authorised almost immediately.
May be a need for a CER in case of catastrophes.

(ii) For UPR need a pattern of risk over the period of the contract.
This may be over e.g. 3 years where in the first year there is no risk due to the manufacturers guarantee period.
So non uniform earnings pattern.
There may also be significant risk near the end of the contract where customers instigate repairs with a view to recovering from the insurance.
If past claims data is available then risk profile can be derived from the pattern of claims emerging over the life of the contract.
If no data then estimate risk profile by examining the product and assessing when various components may fail.

6 *The better candidates clearly showed their ability to consider the difference between such an insurance product and the 'normal standard' motor product. Hence this question produced a good indicator for the examiners of candidates ability to demonstrate their understanding of general insurance products in respect of rating factors,claims experience, data and pricing.*

(i) High performance sports cars

Type of car:	ABI car groups do not classify high performance vehicles accurately.
Age of driver(s):	It is likely that rating differentials for younger drivers will need to be higher than for standard risks.
Security:	These cars are more likely to be stolen and rates for cars without adequate security will need to be increased. Overnight garaging may be necessary.
Mileage:	Many of these cars are likely to be driven only occasionally and will be the second or third car in a household. Those which are the main car in a household may be a substantially higher risk.
Driving experience:	A driver may take some time to become used to the performance of the car, especially in adverse conditions. Length of ownership and / or previous car may be relevant.
Track days:	Many high performance cars are taken to track days at racing circuits.
Modifications:	Value may be higher as car spare parts difficult to replace.

(ii) Damage claims

Many of these cars will be high value and / or specialist cars which may not be able to be repaired through the normal repairer network. Main dealers may be few and far between and their labour rates much more expensive. Parts may be in short supply and may need to be ordered from the factory.

Theft

These cars will be sought after and hence susceptible to theft. Those without adequate or high levels of security such as tracking devices may have a high occurrence of theft claims.

Claim numbers / frequency

Claim frequency will depend mainly on whether the car is in regular, daily use or used infrequently.
Claims experience will be more variable both by numbers and average cost.

Liability claims

If the cars are particularly high value and hence purchased by wealthy individuals there may be an increased liability risk as any passengers are more likely to have high earnings.

Possibility of accumulation of claims, e.g. at a rally.

(iii) The company's existing portfolio may include such vehicles and it could therefore analyse the claims experience for them.

Analysis of the FSA returns from existing specialists in this field. Unless this is the only type of motor business written by them, the results will be clouded by other motor business.

Car clubs might give some information but it is unlikely to be of a reliable or a factual nature.

Competitive reinsurers — quote engines — may not cover special arrangements
and "non-standard" risks

(iv) Advantages

Relatively quick and easy

If the rates are competitive it will allow the company to obtain business and hence data which it can use to derive it's own rating structure

Disadvantages

Underwriting standards are likely to be different
The expense and commission levels allowed for may be insufficient
Profit requirements are likely to be different
May not be profitable
Policy conditions may be different
Some brokers may have discounting arrangements in place
Control of claims costs are likely to be different
Reinsurance arrangements and costs will be different

7 *Even though part (iii) of this question indicated that HDD contracts mitigate against cold weather, many candidates showed in part (I) that HDD related to cases of temperatures higher than a reference point. Some candidates showed little or no understanding of weather derivatives, which had featured on a recent exam paper. However, some candidates did demonstrate a good understanding of such contracts probably as a result of looking at past exam papers or reading around the subject. This question therefore produced a wide range of marks giving a good indication of the understanding of general insurance.*

(i) A Degree Day is defined as a one degree difference between a reference temperature, say 65°F (18°C), and the Average Daily Temperature (defined as [MinTemp + MaxTemp]/2).
The reference temperature is chosen as a representative temperature above which people turn on air conditioning and below which, turn on heating.
Heating Degree Days (HDDs) represent temperatures below 65°F, and Cooling Degree Days (CDDs) those above.
Thus a day with average temperature of 55°F represents 10 HDDs.

(ii)

- No need for insurable interest — much more flexible
- No need to understand underlying business of purchase of cover
- Payout is more certain — no need to demonstrate to claims handler that a loss has occurred. This makes the frictional expenses lower.

(iii)

- Need a HDD based derivative
- Need to analyse daily sales data of ice cream manufacturer over the past few years.
- Need to understand how the company's sales and profitability are linked..
- Need to get access to reliable temperature data from the met office. If necessary we need to clean this data to remove distorting effects such as changing the position of the met office station over time.
- First need to "clean" the sales data to remove distortions that are not to do with the weather (e.g. marketing initiative of self or of major competitor).
- Look for correlations between the weather and the sales data.

- Design a contract that will smooth the expected profit of the company to the greatest extent possible.
- Customer can purchase an option — only downside is the option cost.
- Or customer can enter into a swap — possible downside as well as upside — may have no up front cost associated with it. Customer is effectively giving up some future potential profit as the price of protecting its downside.
- Typical HDD contract has the following features
    - Period, e.g. 1/5/02–31/8/02
    - HDD definition (say using 18 degrees Celsius)
    - Strike amount (e.g. 100 HDDs)
    - Tic amount (say £500)
    - Contract pays out £500 for every point that the cumulative number of HDDs between 1/5/02 and 31/8/02 exceeds 100. If this contract is a swap then the purchaser must pays £500 to the seller for every point that the cumulative number of HDDs between 1/5/02 and 31/8/02 is less than 100. If the contract is an option then there is no requirement to pay if the index falls below 100 but an option price will be charged by the seller of the derivative.

- There are many other possibilities available but options or swaps are perhaps the most common.

8 *Candidates generally scored most of their marks on parts (i) and (ii) which were bookwork. Some candidates did not use all the information given in part (iii), and hence did not produce the correct loss ratios and consequential profit commission. However, marks were still awarded for any valid comments on the results produced.*

(i) Period of cover
Name/address of Cedant
Name/address of Reinsurer(s)
territorial scope
class(es) of business covered
exclusions to cover
definition of loss occurrence
ceding company retention
cover granted/limit
reinstatement provisions
stability clause/indexation
premium rate
premium payment terms
ceding commissions payable
profit commission amount
profit commission calculation method
Brokerage
claim notification arrangements
claim payment arrangements

cash loss clause
rendering/settlement of accounts
currency clause
access to records clause
termination terms
sunset clause
arbitration clause

(ii) proportional reinsurance
i.e. reinsurer covers proportion of each risk ceded, fixed at time of cession
proportion covered varies from risk to risk
Usually risks attaching basis
May use sum insured or EML to decide cession
for cedant, may be facultative or obligatory
for reinsurer, will be obligatory
Will have max retention (R) of cedant, and max number of lines (N)
Max cession is NxR, retention R.
Cedant may use less than N lines, or retain less then R.
reinsurer and cedants portfolio differ

- reinsurer will pick up more on larger risks

reinsurer and cedant results will differ
likely to be maximum cessions

- by risk accumulation e.g. total aggregate in a catastrophe zone
- by premium to control total exposure

admin more complicated than quota share
purposes
enable cedant to write larger risks
enable cedant to balance/tune portfolio
useful if risk size varies widely
protect solvency margin

(iii)

Year	*Written Premium*	*Average Rate*	*Rate Index*	*Indexed Written Premium*
1996	200	10	1.800	360
1997	300	11	1.636	491
1998	500	12	1.500	750
1999	400	13	1.385	554
2000	500	15	1.200	600
2001	700	17	1.059	741
		18		

Year	*Incurred Loss*	*Loss Index*	*Indexed Loss*
1996	100	1.194	119
1997	165	1.159	191

1998	1,000	1.126	1,126
1999	200	1.093	219
2000	300	1.061	318
2001	420	1.030	433

Assume premium rate is appropriate for business ceded to surplus
Assume the mix by type and size of property has been stale over time
Assume IBNR already included in incurred loss number given
Assume property loss will increase 3% next year

Year	*Indexed Written Premium*	*Indexed Loss*	*Indexed Loss Ratio*	*Ceding Commission*	*Profit Commission*
1996	360	119	33.17%	30.00%	5.37%
1997	491	191	38.96%	30.00%	4.21%
1998	750	1,126	150.07%	30.00%	0.00%
1999	554	219	39.46%	30.00%	4.11%
2000	600	318	53.05%	30.00%	1.39%
2001	741	433	58.37%	30.00%	0.33%
	3,496	2406	68.81%	30.00%	2.10%

Assume no deficit carry-forward on profit commission

example PC for 1996
profit = (100% – LR – cede – 10%) = 26.83%
PC = 20% of profit = 5.366%

Year	*Combined Ratio (excluding internal expenses)*
1996	68.53%
1997	73.17%
1998	180.07%
1999	73.57%
2000	84.44%
2001	88.69%
	100.91%

Discussion/issues

What caused high loss ratio in 1998?
Catastrophe event?
If so, what is appropriate return period?
spread loss over appropriate period?
look at exposure rating catastrophe risk
what is the exposure/history of large risk losses?

Look at exposure rating risk losses?
Is experience rated PC value appropriate?
look at building aggregate loss distribution for treaty?
internal expense load needed?
Internal profit load needed?
Internal capital allocation/profit target?
Allowance for investment return?
Other considerations e.g. relationship with insurer/broker, other business.

Conclusion
logical argument considering 98 year, investment income, internal expenses and profit….