INSTITUTE AND FACULTY OF ACTUARIES

EXAMINERS' REPORT

April 2013 examinations

Subject ST1 – Health and Care
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 ST1

Candidates who approached the questions, especially the more substantial elements of each question, in a methodical and detailed manner were far more likely to satisfy the examiners and receive a pass in the subject. Candidates will gain few marks if they do not address the question asked. The mark allocation for each question part gives an indication of the relative length of answer or number of points to be made to gain full marks.

It is often helpful to use subheadings when answering long part questions.

Comments on the April 2013 paper

Overall, the paper was of a fairly standard level and well-prepared candidates scored well across most of the paper. As usual, questions that focussed on knowledge of the Core Reading were well answered by those who had prepared thoroughly. However, questions requiring wider thinking or application of core reading to specific circumstances, such as questions 4, 5, 6 and 8, were less well answered and students should recognise that these are generally the questions which differentiate those students with a good grasp and understanding of the subject. The comments that follow the questions concentrate on areas where candidates could have improved their performance. Candidates approaching the subject for the first time are advised to concentrate their revision in these areas.

1 (i) Commission can sway a distributor into taking actions that may not otherwise be the best thing to do, such as recommending a product that would not be the most suitable or churning business or encouraging a customer to pay a higher premium than they might reasonably be able to afford. This could lead to an increase in lapses, which could result in loss of profit or it could lead to mis-selling/reputational risk and/or regulatory fines with a potential decrease in new business volumes.

Paying a higher average rate of commission (e.g. due to a different mix of business to that expected) than the rate loaded into the policy pricing would lead to lower profits per policy than expected. In extremis, paying too much commission could lead to a policy making a loss.

Commission is often paid early in the lifetime of the policy. Hence, if a policy lapses before the accumulated cashflows have become positive, the insurer will make a loss.

For products under which good persistency generates higher profits, poor commission structure (nil or low renewal commission) can lead to higher lapses and therefore lower profits.

Low commission rates or rates that are out of line with competitors could lead to distributors not promoting the product and hence a decrease in new business volumes, possibly resulting in fixed expenses not being covered. Conversely high commission rates may lead to more business being sold than expected, possibly leading to admin/capital strain.

There may be a counterparty risk relating to payment of clawback monies owed.

(ii) Ensure commission is commensurate with sales effort
Ensure commission paid is commensurate with policy loadings
Ensure commission levels do not introduce product bias
Ensure that commission does not encourage over selling
Ensure the commission is matched with clawback controls on early lapse
Monitor experience, such as business volumes, mix and persistency by distributor channel and set commission rates accordingly
For products under which good persistency generates higher profits, offer renewal as well as initial commission, or offer level commission
Monitor competitors' commission rates and stay in line
Maintain good communications with brokers
Move to a fee model

Many candidates scored well on this question, providing a good range of ideas in answer to both question parts.

2 (i) (a) a company should select investments that are appropriate to the nature, term and currency of the liabilities

(b) the investments should also be selected so as to maximise the overall return on the assets, where overall return includes both income and capital

The extent to which (a) may be departed from in order to meet (b) will depend, inter alia, on the extent of the company's free assets and the company's appetite for risk.

Or, alternatively:

The company should invest so as to maximise the overall return on the assets, subject to the risk therein being within the financial resources available to it.

(ii) For all, the reserves should be matched by currency.

For (a), (c) and (d) there will be an expense element to the reserves (as well as benefit reserves)

Since expenses increase at real rates, index-linked government bonds or similar may be appropriate for part of the investment.

In general, need to consider liquidity and security aspects when choosing types of bonds – most likely to be government bonds.

(a) Claims are guaranteed in monetary terms, so cash or money market instruments would be most suitable.

These claims have already been incurred, so will mainly be payable imminently or at least in the short term. Therefore short term assets would be suitable and the assets need to be liquid. Would also hold some medium term bonds to reflect that some of the benefit payment may be rather longer tailed.

(b) The liability under these reserves is the value of the units. Hence the assets should ideally be a perfect match to the description of the units; units in the funds which are used to derive the unit price for policyholders are the best match. This may also be a regulatory requirement. It depends on what is said in the policy documentation whether investments are made in the underlying assets and whether or not the unit fund is protected.

(c) These annuities will have duration of up to around five years, but the precise duration will not be known. The outgo amount is often known apart from any step ups/indexation or guarantees on early death. Assuming a reasonable size of portfolio, a matching portfolio of bonds can be developed. This will have coupon and redemption payments

matching the expected outgo from the annuities, so would comprise a range of short term bonds.

If the annuities are index-linked then the bonds chosen may also be index-linked.

(d) These claims have already been incurred, and notified, but not settled. As such they will start to be payable imminently, but some claims may have a relatively long tail. An estimate of the run off of the claims should be made, to estimate the future pattern of outgo, including medical cost inflation - which may be difficult to match.

As for (a) the most likely backing asset is cash and some longer duration assets (e.g. bonds) should also be held.

Part (i) was standard bookwork and well answered. There were several good attempts at part (ii). However, not all candidates applied the principles of investment they had stated in part (i) in answering part (ii); in particular not mentioning considerations which related to most of the reserves, such as matching by currency or matching of the expense elements.

3 A restriction on the types of contract that an insurance company can offer
Restrictions on the premium rates or charges that can be used for some types of contract
Restriction on rating factors that can be used to calculate premiums, for example gender or age
Requirements relating to the terms and conditions of the contracts offered, for example, with regard to how paid-up policy and surrender values are to be calculated
Restrictions on the channels through which insurance may be sold
Restrictions on commission payable
Requirements as to the procedures to be followed or the information required to be given as part of the selling process
Restrictions on the ability to underwrite; for example, a prohibition on the use of genetic test results or prohibition on the use of past claims history or medical history
An indirect constraint on the amount of business that may be written due to minimum reserving and solvency capital requirements
Restrictions on the types of asset or the amount of any particular asset in which the insurance company may invest for the purpose of demonstrating solvency
Restrictions relating to counterparties/custodianship
Restrictions on business operations e.g. minimum risk management policy/reporting/data protection
Authorisation of insurer's senior staff (e.g. directors)

This bookwork question was generally well answered, although some candidates focussed excessively on investment restrictions, which limited their ability to score fully.

4 Individual business

Renewal rates are heavily correlated with claims experience**.** Generally the lowest claiming members have renewal rates that are significantly lower than the renewal rate of the highest claiming members. This is because the latter will find it more difficult to obtain similar insurance cover with another insurer and are likely to value the benefits of the product more highly.

Renewals are also highly dependent on the distribution method and levels of commission. For example, insurance intermediaries might be more active in encouraging their clients to renew as this will result in additional commission or fees. Renewal rates will also be dependent on the quality of after sales service.

Renewal rates are likely to depend on the state of the economy and level of economic confidence. PMI may be deemed a "luxury" spend which would be dropped if disposable income levels fall or are uncertain.

Renewals will be dependent on the ongoing competitiveness of the product. Renewal rates for a PMI product would likely reduce if competitors reduce premium rates or offer a more comprehensive set of benefits or a simpler and quicker underwriting process. Similarly, renewal rates will reflect the level of premium increase at the renewal date – and thus will vary according to whether premium rates are guaranteed or not, and whether age at entry pricing/community rating has been used.

The existence of a no claims discount system could influence renewal rates, unless the accrued discount level is "portable" to products offered by other companies.

Changes in terms and conditions could influence renewal rates e.g. level of excess/cover provided.

Renewals will also depend on the perceived level of service delivery within any State-provided alternative, including quality of treatment / accommodation and length of waiting lists. Changes in the range of health services provided by the State will also influence PMI renewals. These aspects will be dependent on the confidence in the economy and the ability of the State to continue to fund its healthcare services.

Renewal rates can also depend on changes in related government incentives for self-provision.

Renewal rates may also vary by age, sex, socio-economic status or affluence of the policyholder and location e.g. territory.

Renewal rates may vary by method of premium collection; for example, if the policyholder has a direct debit set up with the insurer, they may be more likely to renew.

Renewal rates may be affected by publicity, good or adverse, and concerns about the financial strength of the insurer.

Culture in some countries may lead to regular changes in policies or providers; in others there may be little change in renewal rates.

Group business

Renewal of group PMI business is likely to depend mainly on the financial health of the employer.

It may also depend on the extent to which the employer perceives the benefits to be of value to the company relative to the cost incurred e.g. due to faster return to work therefore higher productivity or because it is easier to retain or attract good staff. This will also depend on the extent to which employees value the benefits (which will for example depend on State healthcare provision quality).

The existence of profit sharing/experience rating may affect renewal rates, as might whether the PMI benefits are included as part of a wider employee benefit package.

Group renewal rates can also depend on changes in related government incentives, e.g. tax breaks or legislation.

Candidates who came up with a wide range of ideas, rather than writing at length about just a narrow range, were able to demonstrate better breadth of understanding and hence scored most highly here. Considering individual and group business separately helped with idea generation – many candidates did not comment on factors affecting renewal rates for group business.

5 This serious situation is likely to have been the result of a combination of several of the following reasons acting together.

Claims

Claims could have been much higher than expected, perhaps due to improved/earlier diagnosis of a key critical illness

Business mix could have been poor, e.g. a relatively small number of high sum insured contracts making the insurer highly exposed to claim fluctuations

There may have been concentration risk e.g. a work environment related cancer affecting a large group scheme

Actual incidence rates for critical illnesses could have increased significantly in this country

The insurer may have sold guaranteed rather than reviewable products and was unable to increase premiums in line with underlying changes in incidence rates

Pricing margins could have been inadequate

May not have allowed adequately for the characteristics of the target market

May have experienced more selective lapses than expected, thus increasing average claim rates

Take up of options may have proved to be more expensive than expected

Underwriting

Underwriting standards may not have been in line with pricing assumptions

The insurer may have been suffering greater anti-selection than it anticipated due to its underwriting standards being weaker than those of competitors
Claims management standards may have been poor
Poorly worded terms and conditions could have resulted in more claims than intended having to be accepted
Product design could have been poor

New business
The insurer will have suffered from lack of diversification across other business lines
It may have sold too little new business and therefore found itself unable to cover overhead and fixed expenses; for example, due to increased competition from other insurers or a general downturn in the economy, reducing disposable income or poor publicity e.g. due to a high level of claim rejections
Conversely, the insurer may have sold too much new business with insolvency occurring due to the high new business strain
There may have been a poor mix of business sold, if there are significant cross-subsidies

Expenses
Expenses may have been materially higher than allowed for in the pricing. The insurer may have incurred very high one-off expenses e.g. significant project cost which failed to deliver timely benefits
Or expense inflation may have been very high and the insurer was not able to (or did not) increase premiums accordingly
Actual commission rates paid might have been materially higher than those allowed for in the pricing

Lapses
An unexpectedly high proportion of policies may have lapsed early on, before initial expenses were recovered. Alternatively, later lapse rates might have been significantly lower than anticipated and hence the expected profits did not emerge

Investment
Assets and liabilities may have been mismatched and performed adversely This also might have led to liquidity problems
The insurer may have invested heavily in risky assets which have performed badly e.g. high investment in corporate bonds which have defaulted or surplus assets invested in equities which have suffered from a stock market crash

Regulatory
The reserving basis used may have been found to be inadequate and the insurer had to strengthen it
Poor data / systems might have meant that the insurer was previously not reserving accurately
There may have been the introduction of a new regulatory regime which strengthened minimum solvency requirements and the insurer was unable to meet these new standards
There may have been retrospective legislation introduced which led to higher claims/reserves, lower asset value, payment of more disputed claims than expected

Tax regulations may have changed, with an adverse impact on this insurer's narrow business profile
The insurer may have suffered a significant regulatory fine e.g. for mis-selling contracts

Capital
The insurer may have tried to raise additional capital in the market to offset any of the above but been unable to, for example, due to difficult economic conditions
The insurer may have been operating at the minimum permitted capital without any cushion

Other
The insurer may have been the victim of fraudulent activity or of an operational catastrophe for which it was not adequately insured
Poor management decisions may have been made e.g. deciding to sell products at a loss in order to gain market share
Risk management and governance may have been poor
The reinsurance programme may have been inadequate or a key reinsurer may have defaulted
There may have been an outsourcer/distributor default or other large increases in bad debt

The most successful responses to this question approached the question in an orderly fashion with some sub-headings – this helped to generate a wide range of ideas and to avoid repetition. Some candidates had not necessarily thought through their suggestions fully – it's worth noting that any event that causes both assets and liabilities to drop will have only a minor impact on a company's solvency.

6 Critical illness

There will be no direct impact on the CI policies
The insurer may choose to stop writing IP and concentrate on CI. Need to be aware that other insurers might do the same (or switch from IP to CI) which could make the CI market more competitive
Need to consider whether similar legislation could be introduced in the future for CI business
CI could become more attractive as an alternative product for the gender for whom IP premiums will increase, thus altering the gender mix for CI too
The insurer might consider increasing the coverage of the CI terms and conditions in order to make it more like an IP replacement, if permitted

Rating factors
With IP the main risk relates to the sickness transfer probabilities in the underlying multiple-state model i.e. both the claim inception rates and the claim termination rates, which impact the number and magnitude of claims.

These vary most significantly with gender and age. Age is still a permitted rating factor; however, the insurer may need to identify alternative rating factors as an alternative to gender. For example, occupation may be considered as a "proxy" factor

as it may have a correlation to gender and so the insurer might decide to have a more sophisticated occupation based rating system than previously (more "bands")

The insurer would need to confirm whether the use of "proxy" factors which are strongly correlated to gender would be permitted under the new legislation, or whether these would be considered indirect discrimination

The insurer can also continue to underwrite by health status

Pricing
The single-gender premium rates will need to be based on an assumed gender mix. This exposes the company to significant new business mix risk. There will therefore likely be higher margins in the pricing assumptions

There will be no impact on existing policies unless premium rates are reviewable. The insurer therefore needs to clarify whether the new legislation applies only to new policies or whether future reviewable premiums also cannot be determined by gender.

For existing business, there is a risk of selective lapse and re-entry in respect of the gender for whom the premium will fall

Insurer may be more likely to offer the business only on a reviewable rather than guaranteed premium basis going forwards, given the gender mix uncertainty

Reserving
It is likely that the company can still collect and store data relating to gender. Reserves can still be calculated dependent on gender. However, larger margins in reserves may be needed due to increased uncertainty. Hence there may be additional capital required (also to meet costs) and there may be second order effects such as free assets falling

Sales/profit
Premium income and profit could increase if similar numbers of policies are sold with higher margins. However, the gender which is more risky might find the product much more attractive due to lower aggregated premiums and the less risky lives might find the price increases unacceptable. The latter could choose not to purchase, therefore overall sales/profit could fall and the overall business mix would have a higher weighting towards the higher risk gender which has further implications for pricing and profit. This would lead to the average premium increasing and hence more low risk people exiting - and hence a potential "death spiral" of the market.

Also need to consider the level of competition within the IP market under the new regime. If other providers decide to exit the market as a result of the change, this could enable this insurer to gain higher profit margins

Expenses
There will be increased initial costs e.g. to identify alternative rating factors, train underwriters, make changes to literature, obtain data to test the effectiveness of new rating factors and convert quote systems

The insurer should investigate whether indirect targeting is possible e.g. paying higher commission to outlets with higher sales to the lower risk gender (which may lead to higher overall commission) or the insurer could advertise in magazines targeted to the lower risk gender

There is likely to be an increase in underwriting as more policies will be underwritten to determine the accurate premium, assuming that underwriting can continue to use gender specific ratings or exclusions e.g. for female cancers

Higher expenses may be incurred in finding new markets and sales channels.

There may be higher legal costs if any challenges to indirect discrimination.

Extra renewal expenses may arise due to needing to monitor the new business mix and reprice more actively

Group schemes
Will need to investigate whether these can still be priced on actual group experience.
Insurers would normally use gender specific rates to calculate the group premium, hence changes in the gender mix of a group would lead to a different premium.
Continue to calculate rebates and profit shares

Other considerations
Will need to estimate the expected total number of policies sold after the change
Potential for anti-selection e.g. if purchases can be made with overseas based provider
And high risks choosing high levels of benefit could generate additional selection against the market
Reinsurance may still be allowed to differentiate so no immediate change
May need to increase reinsurance, at least initially
Reinsurer could help advise on the premium averaging
Potential to lobby and have the decision changed
Potential for future changes e.g. may also introduce restrictions on rating by age or there may even be reversals

Candidates who had a clear grasp of the concepts involved here were able to make a good attempt at the question. However, many candidates did not give sufficient attention to the mix of the business sold by the insurer or comment on the potential impacts on the critical illness business, which inhibited their chances of achieving high marks. Many candidates also did not provide a sufficient range of different points to gain high marks, noting the high mark allocation for this question.

7 (i) (a) A feature adopted by friendly societies under which sickness benefits will not be paid for a specific period after the member first joins the society. Most commonly used for health cash plans or, more generally, where a benefit will not be paid for a specific period after the health insurance policy first commences. This waiting period may also be applied to any additional benefit from the date that the member buys the additional units of cover. Can also be called a no-claim period.

There may also be a "waiting period" under Total Permanent Disability benefits, where this is used in order to allow time following the claim date to determine whether the disability is permanent and therefore whether to accept the claim as valid.

Used to reduce the potential for anti-selection.

(b) Most often encountered in income protection (IP) insurance.

It is the period of incapacity before any benefit is paid. The standard deferred periods offered by companies are 4, 13, 26 and 52 weeks (or 1, 3, 6 or 12 months). Group schemes may offer 28 weeks deferment.

May have a split deferred period.

Used to reduce the number of trivial claims and associated expenses and to avoid overlap with any State benefit provision for short term sickness.

(c) Relates to IP claims.

If a claimant, having been in receipt of claim payments, recovers and returns to work but suffers a recurrence of the same disability within a specified period (the "link period") they will be eligible for immediate claim payments without the imposition of another deferred period. The standard definition refers to a linked period of 6 months.

Used to encourage return to work.

(ii) Benefits payable in each year

	2010	2011	2012
Mr A	£2,500	£3,500	£1,500
Mr B	£1,000	£6,000	£1,500
Ms C	£0	£0	£0
Ms D	£0	£0	£3,500
Mr E	£0	£1,000	£0

Candidates with a good grasp of the bookwork had the opportunity to pick up full marks here. For part (ii), candidates taking a careful and methodical approach should have had little difficulty, but many made minor errors which reduced their scores.

8 (i) The government could be cutting its costs or it may be part of "balancing the books"; for example, Actuaria might have a debt crisis or falling tax revenues and needs to undertake austerity measures, or perhaps running costs have increased materially in recent years

The quality of the care homes being closed might not have met the required minimum standards and it was deemed too costly to rectify this. There may

have been complaints about standards, or there may have been scandals or media pressure relating to those homes

It may have been part of a political promise, e.g. to encourage more private provision or to encourage more non-residential provision of care services e.g. enhanced payments/support for carers

Demand for places in the State-run homes may have fallen in general or in specific localities e.g. due to increased affluence of the population leading to a preference to make private arrangements which may be of better quality or offering more choice or in more convenient locations or due to being more able to have care provided at home (e.g. due to a cultural shift towards family network support)

It may be due to a fall in the elderly population or an improvement in the general health of the elderly

(ii) **Those currently employed**

This sector could benefit from lower taxes or from improved other services if the State uses the cost savings elsewhere

Those with elderly parents needing care: there may be an increased burden on those individuals to provide that care themselves if the parent has to rely on domestic support only. These enforced carers may end up with lower incomes or increased costs to themselves if the parents cannot afford private residential provision, or they may find themselves with a reduced inheritance.

Partners of those in care may need to sell the home and downsize**.** Families may need to move to be closer to location of new home or have longer journeys to visit

Individuals living in Actuaria would also need to pay or make provision for their own care. The government is likely to tighten the criteria for entry to State-run homes, e.g. increase the threshold in any means test. The cost of long term care insurance may change

Those in State-run residential homes

These may be turned out of the homes which are to close. They may be too sick for domestic care only and may find it difficult to find a convenient and affordable alternative sufficiently quickly. This could lead to long stays in hospital

However, the closures may lead to a rise in standards of care in remaining State-run homes

Those in privately-run residential homes

Those currently in private residential homes may not be affected. However there could be a fall in care standards if there is a sudden increase in the number of private homes or spaces made available. Or, if there is a rise in

demand without a corresponding increase in supply, there could be a rise in costs

Those on need of long term care in the short term
These could face higher costs if residential care is needed and there is potentially less choice. They may face inadequate levels of care if forced to accept domestic care rather than private residential provision

Staff in long term care homes
These may be relatively unaffected if total demand for nursing care homes is unchanged. However, the quality of employment may differ between the private and public sectors. To the extent that fewer people are able to afford such care, there may be fewer jobs. However, this may provide business opportunities for people to set up private long term care homes.
There may be increased job employment opportunities elsewhere, e.g. insurance

(iii) To the extent that this increases demand for LTCI, this will be beneficial to the insurers who will be able to sell more business, both immediate needs and prefunded – which may increase profits

The cost of care may rise which will also affect insurers:
For indemnity products, they will need to factor in the change in cost for new business and, if costs rise, they may suffer a loss on existing business, depending on the policy terms
Pre-funded long term care is likely to be reviewable, so the impact to the insurer should be less
For non-indemnity (which is the majority) the amount of cover required may rise - which is akin to selling higher volumes, and again is good for business
This may become a growth area, which would have knock on impacts for underwriting, marketing, systems etc and there may be opportunities to raise brand awareness through advertising and public education on the need for provision of care. This may lead to innovative product design e.g. equity release
There may be changes in the markets which the insurer might target
May need to refocus distribution efforts if the closures are concentrated in certain areas
The mix of business may change, affecting experience
May be increased competition from other insurers entering the market
Consider implications of any new State subsidies (e.g. for provision of care at home)
The insurer might purchase some of the care homes
Regulation of LTCI may become more stringent

Candidates prepared to think through the consequences of a scenario had an opportunity to score highly in this question. Taking time to think carefully about the possibilities involved in this question would have been a good use of the reading time.

END OF EXAMINERS' REPORT