

# **EXAMINERS' REPORT**

*June 2016 examinations*

## **Subject F102 — *Life Insurance* Fellowship Principles**

### **INTRODUCTION**

The attached report has been prepared by the subject's Principle Examiner. General comments are provided on the performance of candidates on each question. The solutions provided are an indication of the points sought by the examiners, and should not be taken as model solutions.

## QUESTION 1

Advantages for the insurer:

- New business strain can be reduced under UWP through product design.
  - E.g. higher initial charges.
- Reviewable charges are more acceptable.
- Low (or no) guarantees are more acceptable.
- Easier to understand, which could lead to more new business.
- New PRE can be created by wording marketing material differently.
- Might bring product offering more in line with that of competitors.

Disadvantages for the insurer:

- Will require a new administration system.
- Will require significant marketing and training costs.
- More expensive to administer.
- There is a business risk as the insurer doesn't have experience in writing this class of business.
- The product is similar in structure to unit-linked life insurance business and unit trust business, which means there are more companies to compete against
- Will need expertise in managing the CWP closed fund bonuses.
- There could be negative perceptions created for CWP policyholders/negative impact because it is a closed fund, e.g. if in deficit.
- Reversionary bonuses tend to have a higher cost of bonus in the early years.
- This results in less deferral of surplus and potentially lower level of free assets which reduces investment freedom.

Advantages for the policyholder:

- The UWP product is easier to understand due to:
  - charges being explicit; and
  - bonuses related to the value of units.
- UWP is arguably more equitable as companies tend to hold back less surplus.
- Might be more flexible e.g. switch to unit linked allowed.
- It might be advantageous to existing CWP policyholders, if the fund is in surplus, not to have to share this surplus with new policyholders.

Disadvantages for the policyholder:

- Less smoothing takes place as companies tend to hold back less surplus.
- Could lead to reduced returns, due to less deferral of profits.
- Charges are not always guaranteed.
- If death occurs early in the policy the benefit received may be less than it would have been had a CWP policy been effected.
- Policyholders can no longer purchase CWP policies.

*The majority of candidates confused a unitised with-profit contract with a unit-linked contract. Whilst unitised with-profit contracts look and operate like a unit-linked contract, the company determines the price of the units, the company has discretion over the bonuses granted and there is no direct link to a specified pool of assets on unitised with-profit business. In addition, candidates focused primarily on the differences between the two products and did not generate enough points relating to the business impact side of the decision e.g. might require a new administration system and can create new PRE.*

## QUESTION 2

i. Benefits provided and policyholder needs met by the product:

- A lump sum is payable where the policyholder suffers from one of the covered conditions, in particular the benefit is payable:
  - On the happening of an event, e.g. stroke.
  - On reaching a defined degree of impairment.
  - On undergoing a surgical procedure.
- The sum insured is selected upfront by the policyholder, and thus the product is not designed to indemnify the policyholder.
- It can be useful in helping to offset the cost of medical care or AIDS, e.g. purchasing a wheelchair.
- The lump sum can be used to purchase an impaired life annuity to replace lost income and/or higher ongoing costs (e.g. nursing care) and lifestyle changes.
- In the event of no CI claim, the policyholder will receive a lump sum at maturity, surrender or death, and hence the policy meets a need for savings.
- It can be used by partners to fund the buyout of a stake in a partnership when a partner is diagnosed with CI and is no longer able to continue working.

ii. The investment risks to the insurer:

- Poor investment returns on the unit fund relative to the prudent assumption in setting the premium rate, leading to:
  - Lower than expected unit-linked charges resulting in non-recovery of expenses.
  - Higher than expected CI risk charges, which further reduces the unit fund.
  - Lower than expected surrender/death/maturity benefits and disappointed policyholders (with possible reputational damage to the insurer).
  - Poor unit-linked investment returns relative to competitors, resulting in reputational damage to the insurer.
- The range of funds available (in particular their risk and return characteristics) might not be properly understood by policyholders leading to poor fund selection and increased risk of a poor maturity benefit.

These risks can be mitigated as follows:

- Limit fund choice to exclude funds that can be very volatile and therefore at higher risk of poor performance. Funds that are adequately diversified across asset classes and geographic regions might be most appropriate.
- Adequate information provided at sale of the policy to enable the policyholder to understand the risk/return profile of various investment funds.
- Regular updates on fund performance to enable policyholders to switch to less risky funds as soon as they realise their risk appetites are not consistent with the funds they are invested in.
- Actuarial funding could remove the investment risk associated with recouping of initial expenses, if this is permitted and provided regular charges are expected to be sufficient to do this.
- Do not offer a unit-linked product, but sell only a without-profit CI product.

iii. Additional risk to the insurer:

- There will be additional costs if the unit fund is below the guaranteed fund at time of claim.
- The magnitude of this risk depends on the volatility of the assets in the unit fund: more volatile assets such as equity are expected to increase the riskiness.
- The risk is increased if policyholders have the ability to switch their investment types during the policy term.
- The risk of a shortfall can be managed by matching and/or additional charges.
- As policyholders can choose investment funds, matching sufficient assets to the guaranteed liability is not straightforward:
  - This requires that fund choice be limited to those that include assets that provide a suitable match for the guarantee.
  - However, this will be very restrictive to policyholders and might result in poor sales volumes.
  - The guarantee is a fixed rate, which is matched by fixed interest stocks.
  - Fixed interest stocks should be priced to yield a return of expected inflation plus real return plus an inflation risk premium, so it should be possible to match the 3% p.a. guarantee.
  - Matching won't eliminate all risks due to unknown timing of death benefits. This risk reduces for bigger pools, however for this insurer this may take some time, since this is a new product feature.
  - Instead of restricting the fund choice it may be possible to hedge the guarantee by using put options on assets similar to those underlying the investment fund.
- Matching might not be possible if sufficient and adequate fixed interest stocks don't exist. Or if sufficient and adequate put options don't exist.

- Pricing for the risk and introducing a charge for this benefit:
  - There is greater complexity in pricing and the risk of mis-pricing.
  - The cost of providing the guarantee might make the premium rate and product unattractive leading to poor sales.
  - The charge might differ significantly between policyholders, depending on the riskiness of the underlying unit fund.
  - This further increases the complexity of pricing and administering this business.
  - If pricing does not allow for differences between unit funds then policyholders can select against the company by opting for more risky portfolios.

*The answers to this question were very disappointing given its simplicity. The answers given showed a general lack of understanding of the workings of a simple unit-linked benefit and the risks to the insurer of such a benefit.*

*Part (i) showed candidates' general lack of bookwork knowledge and poor exam technique, with most candidates producing almost a full page of text for the 3 marks available. Few candidates scored anywhere near full marks. Most candidates thought that in response to "outline the benefits that are provided" they could simply regurgitate the detail given in the question – no marks were awarded for copying this detail. Very few candidates provided the circumstances which could trigger a critical illness benefit. Many candidates produced much detail about policyholder needs that can be met by the savings lump sum, without considering the marks on offer or considering broader points in response to this question.*

*Part (ii) showed a clear lack of understanding of how a CI unit-linked benefit works. Most candidates seemed to think that the CI benefit charges are a fixed percentage of the unit fund and that the insurer would make a loss on the risk charges as they would be too low. As the charges will be based on the sum-at-risk each month, the insurer should not make any loss from this source. As the premium will incorporate a savings component, it is also highly unlikely that the premium would not be sufficient to fund the CI charge. Therefore making the CI charge reviewable, as most candidates indicated, is not relevant in the context of mitigating investment risks. Reinsurance is also not a valid mitigation for this question. A large number of candidates indicated that the insurer must match the assets to the liabilities, ignoring the fact that investment choice is in the hand of the policyholder.*

*Part (iii) showed further lack of understanding of unit-linked benefits with minimum guaranteed returns. A large number of candidates seemed to think that if taxes or charges change that the guaranteed fund would remain unchanged. A number of candidates thought that the guaranteed rate was 3% p.a. after taxes and charges (the question is very clear about this). A number of candidates wrote about matching without acknowledging the fact that investment choice is not controlled by the insurer. A number of candidates focussed on mortality anti-selection risks, which is highly unlikely to occur as the death benefit is most likely to just be a return of the unit fund.*

### QUESTION 3

i. Risk factors:

- Type of illness
- Age
- Sex
- Duration from entry / Duration in force
- Smoker status
- Medical status
- Source of business
- Income / Socio-economic class

ii. Discussion of manager's statements:

- Removing this product from the claim investigation will definitely lead to time savings.
- However, the savings might not be as significant as the manager expects, since the claim experience investigations for all the other products still need to be performed.
- Since the business is 100% reinsured the company's exposure to critical illness risk is significantly reduced and, hence, the investigation results are less important to the company.
- However, there are still many reasons why the investigation adds value to the company.
- Even though its exposure to critical illness risk is reduced significantly, it is still exposed to residual critical illness risk. For example:
  - The insurer is still liable to policyholders for claim payments, so if the reinsurer defaults, it will be fully exposed to the disability risk on this book of business.
  - If the reinsurance premiums are reviewable then the reinsurer can increase these premiums in response to a worsening in claims experience.
  - The above means that the company's management needs to understand its critical illness risk exposure, and the claim investigation provides information on this.
- Going forward the company might plan to reduce the reinsurance on this business, which would increase its disability risk and increase the importance of the claim experience investigation.
- The company might be in the process of reducing its reliance on the technical expertise of the reinsurer and hence needs to continue performing these claim experience investigations.
- The analysis could be used to rate the quality of the business by distributor / distribution channel which can be fed into the remuneration of the distributor.

- A claim investigation assesses the validity of the claim rates on critical illness products, which are required for the following purposes:
  - Reserve calculations
  - Product pricing
- The claim investigation will inform the company whether the current reinsurance agreement is too costly to the direct writer.
- It will also provide information to the direct writer regarding the volatility of its critical illness claims experience.
  - This information can be used to negotiate lower reinsurance premiums with the existing reinsurer.
  - This information can also be used to assess the current reinsurance strategy.
  - For example, if the claims volatility is acceptably low the company might realise that it is no longer necessary to reinsure 100% of the business.
- A comparison of actual and expected critical illness claim rates might be required by the regulator.
- The critical illness rates on these products might be used to assist in the pricing of other critical illness products.
- An analysis of the type of illnesses leading to critical illness claims can be very useful information for product design purposes.
- For example, illnesses which trigger very few claims might be replaced by illnesses that are more common and hence meet policyholder needs better.

*Part (i) was generally well handled by candidates. Many candidates scored full marks or close to full marks for this straightforward part.*

*Part (ii) was incredibly poorly handled. The common issues were as follows:*

- *Many candidates failed to agree that not doing the experience study would save time and thereby lost easy marks. Probably only 10-15% of candidates acknowledged this point.*
- *Many candidates (at least 25%) suggested that even though the reinsurance was in place at 100% the company still retained substantial morbidity risk, and went on to explain (wrongly) how that could be true. It seemed as though candidates invented their own question to answer because they didn't like the question they were asked.*
- *Answers were generally far too thin. Candidates often got one or two points but very few candidates gave a sufficiently comprehensive answer to warrant passing the question.*
- *Many candidates raised points that just weren't relevant such as asset shares, mortality rates. Many candidates also made assumptions about the question so that they could answer what they wanted to answer rather than what the question asked.*
- *Many candidates also seemingly have no idea how reinsurance works and made blatantly fallacious statements.*

## QUESTION 4

### i. Reasons:

- In general mortality rates applicable to lower socio-economic classes are higher than the mortality rates of the mid- to high-income market (e.g. due to factors such as access to medical care, nutrition, etc).
- Annuity payments are made until death. Therefore relatively fewer payments are expected to be made to lives from the low income market, which then cross-subsidises the higher cost of the expected benefit payments to the mid- to higher-income market.
- Also, immediate annuity markets tend to be dominated by mid- to higher-income individuals, resulting in single premium rates being weighted towards the lighter mortality of higher socio-economic classes.

### ii. Factors to consider:

- Cross-subsidy
  - Currently there is a cross-subsidy between socio-economic groups. The new product will remove (or at least reduce) that cross-subsidy.
  - This could lead to an increase in price for the higher income classes.
  - However, it is possible that historically the lower socio-economic classes did not buy this product and therefore average mortality experience already reflects the mortality experience of the mid/high socio-economic classes.
    - Therefore the impact on price for the mid/high income classes may be small.
- Client needs
  - Arguably this will be a better match to client needs because the product offers better value for money.
  - Some clients may now have access to a product that previously may have been too expensive.
- Consistency with existing business
  - It is probable that existing products will not have surrender values, in which case lapse and re-entry risks do not have to be considered.
    - Low income policyholders, who have recently purchased an annuity, may be unhappy that they paid more for the same annuity.
  - The actuary will have to consider the impact of this product on the price of new business (only).
- Marketability
  - The actuary may have to consider whether the product features, such as inflation-linked benefit payments, are attractive to the low income market.
    - Attractiveness may be different than in the mid/high-income market.
    - The actuary must also consider whether the current distribution channel is appropriate for the lower socio-economic class (e.g. direct distribution may be considered).
    - A very simple product may be necessary

- Competitiveness
  - The annuity product should be competitive compared to the specialist annuity writer including:
    - A competitive price.
    - Underwriting requirements, e.g. how socio-economic class is determined/assessed.
    - Product features, e.g. guarantee period.
    - Commission.
- Product risks
  - Mortality is a significant risk.
    - In particular, improvements in mortality.
    - It is unlikely that the company has significant annuity experience in the low socio-economic market.
    - It may be relatively more complicated to project improvement for the low socio-economic class.
    - e.g. Improving access to free health care may have relatively larger impact in the lower socio-economic classes.
  - Investment risk
    - Given that a single premium is paid up-front, reinvestment risk is probably limited.  
Unless there is a shortage of appropriately termed bonds<sup>0</sup>
    - For the low-income market, the discounted mean term of liabilities is likely to be shorter, therefore it is more likely to find bonds to match.
  - Product mix risk
    - The company may decide to allocate more of the overhead expenses to the annuity of the higher socio-economic class.
    - This leads to business-mix risk if the<sup>4</sup> mix of business differs from what was assumed.
  - Other risks depend on product features
    - E.g. if there is some guaranteed increase in annuity payments, that may be difficult to match with an appropriate asset.
  - The company may consider the use of reinsurance to manage some of these risks.
- Financing requirements
  - Working capital is not likely to be a significant issue, because this is a single premium contract
    - Would be able to match initial expenses such as commission.
  - There may be solvency capital requirements, however, given the guaranteed nature of the product.
- Onerousness of guarantees
  - The company guarantees an income for life, without the ability to reprice. This will be very onerous.
  - Margins would be required in pricing.
- Profitability
  - This is a relatively new market, so management may set higher profitability requirements.

- Sensitivity of profit
  - Likely to be sensitive to the:
    - mortality experience; and
    - investment experience.
- Administration
  - Unlikely to have a major impact, given that the company is already able to administer annuity products.
- Regulatory requirement
  - This is unlikely to be a significant concern, although restrictions such as maximum fees or minimum annuity rates should be investigated.
- Tax
  - This is unlikely to be a major concern, as the product is likely to be taxed similarly to the existing annuity product.
- Other markets
  - Such products might be well established in foreign markets and the lessons learnt in those markets should be researched.

*The majority of candidates scored well on part (i). The marks for part (ii) were reasonable, in general. The most common mistakes included:*

- *Suggesting that the longevity risk (i.e. the risk that a policyholder lives longer than expected) is necessarily lower for the low socio-economic class because (the absolute) mortality rates are likely to be higher.*
- *Not knowing the features of an immediate annuity product, e.g. some candidates suggested that there is a lapse-and-re-entry risk, without indicating that this is only a risk IF there is a surrender benefit - which is unlikely.*
- *Not understanding that “introducing a rating factor”, means that the actuary should specify the product design for all the “levels” of the rating factor. Some candidates only considered the design in respect of “low socio-economic” lives.*

## **QUESTION 5**

Considerations:

- The company should check that the alteration is supportable by the asset share (i.e. the policy value does not exceed the asset share) at the alteration date in order to avoid making a loss.
- The difference between the asset share and the policy value before alteration (calculated on the current premium basis) represents the “accrued” profit for the period up to the date of alteration that will be extracted by the company.
- Use of the current premium basis to determine the policy value after the alteration will give the expected profit over the remaining life of the contract corresponding with that from current new policies.
- This combination should result in an appropriate amount of profit for the company, assuming that new business terms are profitable.

- The calculation of the present value of the policy after the alteration should be adjusted for initial expenses and commission (which are not payable in the case of an altered policy).
  - If this is not done the terms may be too harsh.
- Similarly, the alteration expenses should be deducted from the policy value before the alteration (or added to the policy value after the alteration).
  - If this is not done the terms may be too generous.
- The company should consider the risk of anti-selection by policyholders.
- Under the new contract, the sum assured will be paid out at either the same time as before (if death occurs before the original maturity date) or later (on survival beyond the original maturity date), which means that either:
  - the revised premium should be lower than before, or
  - if the premium stays the same, the sum assured should be increased.
- Those in very poor health would gain by extending the term of their policy, because they would be paying a lower premium and expect to receive the benefit at the same time as before.
- To deal with this selection risk, the company could:
  - require a declaration of continuing good health;
  - restrict the conditions on which this alteration can be performed, for example, link it to a life event such as the birth of a child;
  - underwrite alterations and modify the terms offered if necessary; or
  - use a basis with higher mortality than in the premium basis to calculate the policy value after the alteration, for all alterations.
- Use of the current premium basis will ensure consistency between the terms offered on alterations and new policies.
  - This will help to avoid potential problems with lapse and re-entry (where policy values before alteration are positive).
- The company will also consider whether the premium, using the alteration basis, is less than the premium the policyholder would pay if he/she lapses the existing policy and uses the surrender value, if any, to subsidise the premium on a new policy with an extended term.
- Using the same basis for the present values before and after the alteration will make the method stable, i.e. a small increase in term will result in only a small increase in premium.
- The company will have to consider alteration terms used by competitors. This may affect policyholders' reasonable expectations.
- The alteration basis is unlikely to change very often, because it is dependent on the current premium basis, which generally does not change frequently in practice.
- The alteration basis:
  - Should be relatively easy to administer, because the existing premium basis is readily available.
  - Could be difficult to explain to policyholders, who are unlikely to be familiar with present value calculations.
  - Should be relatively easy to document.
  - Should be allowed by regulation / professional guidance.

*This was a challenging question and most candidates struggled. Candidates that did well on this question were able to accurately describe the profit that will be extracted using this basis, identify the selection risks that the company should consider and apply the theory (e.g. by indicating that because the same basis is used to calculate the policy values before and after the alteration, a small increase in the product term, will result in a small change in the premium).*

## QUESTION 6

i. Market-consistent methodology:

- A market-consistent approach to the valuation of provisions for policyholder liabilities implies that policyholder liabilities and assets are valued at market value.
- A market-consistent value of a liability is the price that someone would charge for taking ownership of the liability, in a market in which such liabilities are freely traded.
- Such markets for insurance liabilities seldom exist in practice so an approximate approach has to be taken.
- Future parameter values and cashflows are set so as to be consistent with market values, where a corresponding market exists.
- E.g. valuing the cashflows from an immediate without-profits annuity as a series of zero coupon bonds with maturities corresponding with the timing of the cashflows from the annuity.
- The value of the liabilities can be determined:
  - as the current market price of a portfolio of assets that exactly replicates the liabilities; or
  - by discounting the cashflows at current risk-free rates of interest.
- Risk-free rates may be determined based on government bond yields or on swap rates (if there is a sufficiently deep and liquid market).
- If the risk-free rate is derived from corporate bonds it may be appropriate to make a deduction to allow for credit risk.
- Allowance for an illiquidity premium may be permitted for long-term predictable liabilities for which matching assets can be held to maturity.
- It is likely to be difficult to obtain market consistent assumptions for certain elements of the basis (e.g. demographic and expense assumptions).
- These assumptions would be determined on a best-estimate basis including a risk margin.
- The risk margin reflects the compensation required by the market in return for taking on those uncertain aspects of the liability cashflows.
- This could be related to each assumption or overall using the cost of capital approach.
- The overall risk margin using the cost of capital approach is:
  - the projected future capital (using the relevant regulatory basis) at each future time period

- multiplied by the cost of capital (frictional cost of locking in this capital to earn risk free rate rather than invest it freely to earn a higher reward) discounted at market consistent rates.
- The complexity of the exercise to project future capital requirements depends on the complexity of the capital calculations required by the regulator. Simplified approaches may be used.

ii. Minimum solvency margin:

- The minimum solvency margin provides an additional level of protection to the policyholders over and above that provided by the provisions alone.
- The objective is to reduce the likelihood of the insurance companies becoming insolvent in even in extreme (1 in 200 year events) circumstances.
- When considering the adequacy of the provisions that have been set up it is important to do this in the context of the solvency margin (and vice versa).
- The overall security of the financial position of the insurer is the combination of these two items.
- A solvency regime may have a weaker (e.g. best-estimate) basis for provisioning for policyholder liabilities and a more stringent solvency margin (and vice versa).

iii. Explanation:

- The aggregated solvency margin should be reduced to reflect any diversification benefits that exist between the individual risks ie the degree to which individual risks are correlated.
- This is because it is unlikely that the investment and mortality shocks will happen at the same time.
- Diversification benefits can be allowed for through the use of correlation matrices (but under the extreme event conditions being tested, correlations may differ from those observed under normal conditions).
- This could be allowed for by using copulas.
- However, the solvency margin calculated using a correlation matrix may be too low due to the effects of non-linearity and non-separability of individual risks.
- The linearity property of correlation matrices requires that the solvency margin required is a linear function of the risk drivers, but in practice these relationships can be non-linear (e.g. effects of investment guarantees biting).
- Risk drivers may interact with each other and certain scenarios coincide albeit with very small probability.

*Overall performance on this question was poorer than would have been expected for a question with a significant bookwork component. Part (i) was bookwork, yet was poorly answered by many candidates. Part (ii) was answered reasonably well by many candidates. Many of the candidates who failed to score well on this question simply did not write enough.*

## QUESTION 7

i. Underwriting of the individual life product compared to the group product:

- The group underwriting will use an “actively at work” requirement.
- Under group business most of the individuals will be under the Free Cover Limit, and hence will not be underwritten. For individual business you will have to do medical, financial, and avocational underwriting.
- Anti-selection is much more of a problem with the individual life business, and this is exacerbated by selling through independent intermediaries.
- It is likely that the Individual life product will be sold to many self-employed people.
- Hence financial underwriting will be crucial, as opposed to the situation for group benefits where the benefit is based on a known salary.

ii. Factors defining the benefit:

- Definition of disability
- Waiting period
- Deferred period
- Linked-claims period (off period)
- Replacement ratio
- Escalation rate of benefits
  - Before claim
  - In payment
- Proportionate / rehabilitation benefit
- Benefit expiry age / retirement age

Pricing assumptions:

- Need assumptions for both the best estimates and margins to be included
- Mortality:
  - Pre claim
  - During claim
- Claim termination rates  
This is dependent on:
  - Recovery rates
  - Mortality rates
- Investment return (to set up reserves):
  - Before claim
  - Once claim is in payment
  - Tax on investment returns
  - Cost of investment management
- Expense assumptions:
  - Initial (incl. commission)
  - Renewal

- Any on-going commission
  - Claims assessment
    - at claim inception and
    - any subsequent re-assessments
  - Expense inflation rate
- iii. This is a new product, so you have no directly relevant past experience. It will thus be necessary to make use of other data sources.

You have 20 years of group income protection experience so there should be a lot of data for short- to medium-term claims. There will be limited claims of duration over 10 years, but there will still be some data.

Provided there is enough group data, rates can be derived from first principles using multi-state models or a formula approach using two double decrement tables. Then smoothing techniques can be applied to smooth out the rates. Alternatively the current group income protection claim incidence and termination rates can be adjusted using the experience data.

If you decide that you can use the group experience you will need to:

- Make allowances for differences between individual and group business.
- Consider any trends in the group experience, and in particular if there have been major economic impacts (recessions or booms) which would have influenced the incidence and the termination rates.

The difference in the products may impact the relevance of the group data as follows:

- Over-insurance, more likely in the individual life business, could negatively impact both the incidence rates and the termination rates.
- Individual life policies are usually sold with much shorter deferred periods, typically 7 days and 1 month, as opposed to group which usually have 3 and 6 month deferred periods. For the 7 day and 1 month deferred periods, you will experience very different incidence and termination rates to your group business. The incidence rates will increase significantly as there will be a lot more minor claims. The termination rates will also increase significantly due to the minor nature of the claims. It is not clear which of these two changes is more significant.
- Under group policies there is an employer involved who may be more or less motivated to help the person get back to work. For a self-employed person the dynamics are different. It is difficult to know which way this will influence the experience.
- You must weigh up the benefit of underwriting versus the benefit of “actively at work” for the group lives. In practice it is not clear which way this will go, as the anti-selection on Individual life often outweighs the “actively at work” for group business.

- There may also be differences in claims paying philosophy for the two products, which could have a very large impact on the experience.

You would probably also ask a reinsurer to assist you with the pricing. The reinsurer would either use the experience from the local products that it reinsures, or use international experience, adjusted for any differences to the local product and market.

Industry data could also be considered where available, and if deemed relevant.

*Parts (i) and (ii) were fairly well answered by the majority of candidates.*

*Part (iii) was answered poorly by most candidates. Most candidates did not address the second half of the question which was “explaining to what extent the data from the company’s group product may be relevant.” Furthermore, for those that did mention the differences between group and individual income protection, most only listed the differences and did not explain the impact these differences would have on incidence and termination rates.*

## QUESTION 8

i. Risks:

- The risk to the company would depend on the products it sells and how it currently underwrites this target market.
- Mortality:
  - Mortality experience may be worse than assumed.
  - Mortality estimation, in particular for the high risk lives, would be more difficult as the result of not being allowed to request medical examinations.
  - Mortality experience could also be worse than expected owing to the fact that HIV/AIDS exclusions cannot be used.
  - The risk of anti-selection is also exacerbated.
  - There is also the risk that applicants may be dishonest on their proposal forms, as it would not be picked up in a medical examination.
  - Even with small sums assured the above still represent risks.
- Expenses:
  - Although there could be expense savings in not having medical examinations which would offset increased costs related to implementing the change, expenses and expense inflation may be worse than expected.
- Business mix:
  - The fact that rates may only differ by age means that companies will need to estimate the gender (and health) breakdown of policyholders.
  - There is a risk that this will be incorrectly estimated as it may not stay as it is currently.
- Withdrawals:
  - Withdrawal rates will generally be difficult to estimate in the low-income market (as well as being high relative to other markets), as individuals will have less money available and will be exposed to economic conditions, etc. Early withdrawals (when asset shares are negative) will lead to losses.

- If it is now possible for males to get cheaper cover (as premium differentiation may not be based on gender) the company may face withdrawals, including lapse and re-entry.
- Lapse and re-entry will also be a problem in respect of lives who currently have HIV/AIDS exclusions, or loadings based on medical examinations, on their contracts.
- Competition:
  - If premiums need to be increased on protection products to cope with the increased risk this may make the product uncompetitive.
  - However, other insurers may be similarly affected reducing this risk.
  - Higher overall prices in the market though may make products less affordable to the low income sector reducing sales.
  - This may also exacerbate the anti-selection risk.
- Business volumes:
  - Lower business volumes than anticipated (e.g. as outlined above) would impact on expense recoupment.
  - If the restrictions in underwriting prove attractive, and underwriting appears more streamlined, more policies than anticipated may be sold.
  - This could lead to higher new business strain than planned.
- There is a risk that the agreement/legislation may change again in the future.

Reducing the risks through product design:

- Pricing could be done conservatively (by increasing margins) to reduce the risk of incorrect mortality estimation.
- Premiums could be made reviewable so that if experience is worse than expected then premiums could be increased.
- Sums insured could be limited to reduce the mortality risk.
- Waiting periods for death benefits (other than on accidental death) could be introduced to counter the worst cases of anti-selection.
- The terms of the policies could be reduced.
- Age limits could be imposed, for example if the risk was deemed to be too high at older ages.
- A pre-existing condition exclusion could be introduced (for conditions other than HIV/AIDS), although this would require that more emphasis be placed on claims underwriting.
- The company could focus on sales of products with larger savings components.
- Offering unitised products with variable charges could also reduce risk.

ii. Relative advantages of selling through the bank:

- Currently the bank has proved to be a good source of new business.
- It should provide access to a large (and “warm”) customer base of individuals with bank accounts.
- By selling to appropriate individuals persistency should be fairly good.
- Assumptions should be easier to estimate if selling through a known distribution channel (with additional information) compared to a new one.

- Systems for writing new business should be set up and working well. With a new direct marketing channel this would still need to be put in place.
- Sales costs could be relatively low, as marketing costs are low, leads are “warm” and the bank may carry out much of the initial administration.
- Sales costs will be largely commission-based relating to the volume sold, whereas direct marketing may have a large component of fixed (and set-up) costs.
- Theoretically the product does not have to be so competitive when sold through a bank.
- Persistency may be high, as the payment method is likely to use debit orders and the bank has information on the suitability of its clients.
- May be less anti-selection as sales are initiated by the bank, unlike in direct marketing (depending on the model of direct marketing used).

Relative disadvantages of selling through the bank:

- The bank may place constraints on the product design and price.
- Many individuals in the low income sector may not be in the formal banking market, hence the bank may not reach the target market.
- The direct marketing route may have lower costs in the long run.
- There will be less control over how the product is sold through the bank than would be the case with direct marketing.
- Policy information may be captured inaccurately by the bank staff.
- Bank staff may sell inappropriately to the low-income market, and sales may be higher pressured than with direct marketing, leading to low persistency.
- If the parent sells this company there will be a large reduction in new business volumes.

*This question was not well answered by most candidates, with many answers being overly generic.*

*High mortality (etc.) is not, per se, a risk. The risk is that it cannot be estimated correctly and that experience is worse than expected. Many candidates did not make this clear in their answers to part (i). Likewise, cross-subsidies are not a problem, the risk arises if the mix of business is different to than anticipated when allowing for the cross-subsidies in pricing.*

*Many candidates discussed how the risks could be reduced by factors other than product design. Some candidates even spent time explaining how underwriting or reinsurance could be used, despite the question specifically excluding these factors.*

*In part (ii) some candidates referred to “members” when presumably they were referring to policyholders.*

**END OF EXAMINERS’ REPORT**