

Actuarial Society of South Africa

EXAMINATION

2 NOVEMBER 2012

**Subject F203 — General Insurance
Specialist Applications**

EXAMINERS' REPORT

Question 1:

(i)

Accumulation of risk

An accumulation of risk occurs when a portfolio of business contains a concentration of risks that might give rise to exceptionally large losses from a single event. Such an accumulation might occur e.g. by location (property insurance) or occupation (employers' liability insurance).

Pooling

Arrangements where parties agree to share premiums and losses for specific types of class or cover in agreed proportions. To some extent all insurance is pooling but specific pooling arrangements often apply particularly where the risks have very large unit size (e.g. atomic energy risks) or via mutual associations, such as P&I clubs, catering for an industry.

Self-insurance

The retention of risk by an individual or organisation, as distinct from obtaining insurance cover.

Large commercial concerns may opt for self-insurance on the grounds that they are avoiding the extra expenses and profit loadings of an insurance policy and have sufficiently strong finances to cope with their likely losses. In practice, they will typically still seek insurance against very large losses by having insurance contracts with very high excesses. Effectively, having any non-zero excess implies a level of self-insurance. Owning a captive insurance company is a means of arranging for self-insurance, with cover for very large losses being arranged by the captive by means of reinsurance.

(ii) Implications of one commercial policy

Financial implications need to be considered:

- How is premium paid (from head office and they charge an expense fee to the franchise)
- This will impact franchise agreements and could meet resistance
- The level of cost – how do you split. Some will pay more and some will pay less
- Do you split it based on turnover, risk exposure or location.
- The cost of insurance needs to be assessed. It may be cheaper due to pooling of risk .
- Brokers for large accounts often work on a fee basis rather than a commission basis, this may be cheaper through combined than individual policies)
- Potential diversification between risks may lead to lower rates
- Experience rating could be introduced
- Could have larger excesses (or self-insurance)

Claims

- A new claim process needs to be developed to ensure that claims are handled correctly within Hats & Coffee. (There may be delays due to the fact that the claim needs to be reported to head office first.)

- All claims experience now impacts everybody, which previously wasn't the case
- Low risk areas will be negatively impacted by the high risk areas and vice versa
- It can have an adverse effect on risk mitigation and management as the "group" is now looking after the risk as opposed to the individual franchise owner.

Other

- Careful negotiation will be needed with each franchise to avoid resistance
- May have access to wider insurance markets
- There will be more bargaining power which will hopefully improve terms and reduce cost
- Head office will have more control and can ensure that all risks are covered – this will lead to better oversight of risk management
- Loss of relationships (of franchises/head office) with the brokers/insurers that they used previously
- If each new franchise will be automatically covered the process will be more efficient in future.
- Does this fit with the franchise's future expansion plans?
- Franchise owners don't need to spend time on insurance – they can focus on managing the business.

Issues to be addressed

Risk assessment

- A complete risk assessment is needed
- Detailed information on the risk exposure at each franchise needs to be collected
- And needs to be combined with the centralised head office warehouse exposure
- There are costs associated with this, which will reduce the impact of savings
- Accumulation exposure may now be present due to the fact that we are combining risks
- This needs to be considered for all classes of insurance, liability, building, business interruption, CAT, etc.
- Moral hazard – more claims submitted from franchises

Existing Insurance structure

- Details of all current insurance arrangements needs to be collected
- Terms, conditions, perils and cover provided, as these will differ

New insurance structure

- You will need to develop an insurance structure that meets the needs of head office and each franchisee.
- This will be difficult, as some franchisees will have gaps in cover (increases operational risk)
- or additional cover that they don't need under the new structure (e.g. lower deductible)
- You need to ensure that you don't reduce the individual protection currently enjoyed by each franchise because of a loss of customised cover (must now use a "one size fits all" approach)
- Can insure risks that would otherwise not necessarily be included in the individual policies
- How will the insurance cost of head office be handled – will each franchise contribute?
- Centralising means that one insurer may be used to cover all perils (vs. multiple insurers possibly used if franchises buy cover separately) This may increase the risk of insurer default to the franchise group.
- Some franchises may not have had cover in place at all – can the head office force them to? This may lead to changes in agreements.
- It may not be possible to obtain all the cover needed from one insurer.
- Transition from diversified to centralised structure will need to take account of things like different renewal dates, cancellation clauses etc in the existing contracts.
- Moving to a new insurer may be costly/difficult

Administration

- Need to establish an administration function for insurance at head office level
- Additional administration and coordination cost at head office
- However if centralised there may be some expense savings in the long run because duplication of work is eliminated

(iii)

Merits of self insurance vs. traditional

Pros

- Reduced intermediary cost / less premium expenditure
- The insured will be able to share in insurance (underwriting) profits
- Insurance cost reduces due to the level of cover reducing
- Focus on risk management
- Not subjected to the insurance cycle
- Investment return can be managed better (no boundaries on admissible assets)

Cons

- Insured will take on more risk

- More claim expenses
- Need insurance expertise to assess own risk – if the coffee shop chain doesn't have the expertise, it will need to get a management agent/consultant that increases cost again
- May have a lack of insurance transfer
- May require capitalisation, which could be used elsewhere in the business
- With self insurance one is more exposed to the effect of certain risks as the level of cover from the reinsurance market is less. Managers will need to focus more on risk management to limit the impact of potential claims as there is less cover. They might not have the experience or have the capacity to spend more time on this. (Concentration of risk on balance sheet.)
- You will need to have more control over claim management and over the franchisees as you are directly impacted by all experience (often the insurers are better at managing the claims and achieve better savings, turn-around-times etc)
- Volatility of results (if there are large claims, it will lead to less profit on the income statement).

Contingency vs. traditional

- + You get the insurance expertise from SuperSaver
- + Reduced administration burden
- + Contingency policies generally provide stop loss cover which may be beneficial. (Or mention access to reinsurance market that will reduce retained risk)
- + You can share in the profits
- + You can put wider risks into a contingency policy, i.e. risks not easily covered elsewhere.
- + You can customise the cover better for different franchisees by way of different aggregates and deductibles.
- + Can improve investment return if sufficient expertise available / increased investment return
- + Tax benefit if a policy is bought vs. holding own reserves on balance sheet
- You lose the benefit of the emphasis on risk mitigation as somebody else is covering the risk.
- Insurer is responsible for investment decisions

Traditional commercial

- + Traditional commercial reinsurance treaties will provide more cover than self insurance, which exposes your balance sheet, and contingency policies which are capped at lower amounts than traditional commercial reinsurance treaties.
- + Brokers will give advice
- Brokers ask commission/fees
- Possible gaps in cover

(iv) Appropriateness of using a DFA – the model itself

DFA's purpose is to provide management with:

- reliable information about the interaction of decisions from all areas of company operations, specifically with regards to each franchisee
- a quantitative view of the risk-and-return trade-offs inherent in each insurance purchase strategy.
- a structured process for evaluating the options

With DFA tools, management should be better equipped to run the business and the insurance purchase decision in its three fundamental aims: absorbing the transfer of risk, ensuring appropriate profitability given the level of risk exposure, money available to absorb risk.

It allows you to test the impact of various different items including:

- insurance structure,
- management action,
- risk appetite,
- investment strategy
- stress and scenario testing

to determine the best approach to take given all the alternatives and variations of financial conditions.

DFA modelling is definitely appropriate to use in deciding on the best strategy.

(Or, if a good motivation is given, similar marks given if the candidate concluded that a simpler model would be appropriate (with limited use))

(v) Reduce the premium:

Risk mitigation techniques

- Improve current risk management across the group
You do this by
- Standard safety procedures (including training) throughout the group (specifically fire protection).
- Quality safety equipment in each franchise (fire hydrants)
- Regular audits and maintenance of all safety features
- Can spread stock to more than one location to decrease concentration risk
- Set minimum criteria for new premises with regards to
 - building age &
 - construction type &

- location
- specify minimum security measures to be in place: burglar bars and fences

Policy conditions

- Buying less insurance – this can be done by
 - Choosing a higher excess
 - Add deductibles for each single risk
 - Add an aggregate deductible applicable to the whole portfolio

- Price arbitrage – get different quotes
- Add exclusions to the policy
- Negotiate commission
- Introduce a first loss basis
- Limit the insurance cover to a specified loss ratio (e.g. 120%)
- Add a loss-participation clause

Question 2:

i)

Definition

UMA stands for Underwriting Management Agency

A UMA is defined as an intermediary as per Section 48(2) of the Short Term Insurance Act (STIA). It differs from an Insurance Broker in that it is the authorised agent of a particular Insurer or Insurers and it receives remuneration in a form other than commission.

A UMA may be wholly owned by an insurer in which case it functions as a wholly owned subsidiary of the insurer, or ownership can be shared between the UMA and an insurer or it can be owned by other parties, normally the owner manager/s of the business. Whatever the ownership there may be no cross ownership in a broker.

Typically a UMA is an expert or specialist in their product or field. Their staff, systems and distribution channel are tailor made to manage, pay claims and distribute their specific product. This is also the main reason why an insurer would appoint a UMA.

An insurer can enter into an agreement with the UMA in which part of the underwriting and administration duties are passed on to the UMA. As such the UMA becomes an intermediary.

A UMA can't deal directly with the public.

A UMA can be associated with more than one insurer

Duties

The duties of a UMA may include:

- Package/design insurance products with the assistance of an insurance company or package insurance products on the terms and conditions set by an insurer.
- Underwrite risks and accept or declines business on behalf of insurance companies,
- Issue policies.
- Receive and accept applications from brokers (it may not accept applications directly from policyholder).
- If it has obtained an Intermediaries Guarantee Facility (IGF), then it can collect premiums on the underwriter's behalf, it will then deduct its fee from the client's premium before paying the balance over to the insurer. If no IGF is in place, then the client pays premium directly to the insurer. The insurer then pays the UMA an administration fee.
- Manage and Pay claims.

ii)

Discuss Appropriateness

- Currently it is on a calendar year basis. From a more accurate risk perspective (as it avoids assumptions) it is best to do it on an underwriting year basis. However, it is more practical to do it on a calendar year basis mainly due to the time it takes business to run-off and all things being equal the results will be the same at the end of the day, so the calendar year approach could be appropriate if implemented correctly. More often than not systems don't allow underwriting year calculations.
- Using earned premium and incurred claims match the same risk period
- Incurred claims: reserves are based on FSB requirements. This may or may not be appropriate for all partners based on their actual experience e.g. UPR/cash-back – dispensation could be obtained.
- There is no incentive to manage claims cost. Some reserves may be more prudent than others – need to check for consistency of case estimates used in the OCR.
- Using incurred claims can be appropriate if it is applied consistently and since it is the required level that every insurer needs to hold. However, one needs to check if the reserves on the prescribed basis are sufficient for the class of business.
- Commissions are based on the overall average of Xsure's business. This is not appropriate because different lines of business have different commission rates.
- Reinsurance may not be allowed for appropriately per partnership as each reinsurance agreement is different.
- Appropriate that it is on a net basis, i.e. allowing for RI
- Expenses:
 - o Fixed amount R1,500,000. This is inappropriate as it doesn't take into account actual expenses incurred
 - o Expenses reduction is not incentivised in any way, which is not ideal for Xsure
 - o 5% licence fee is based on gross written premium, which is probably appropriate as the gross written premium is what the licence is exposed to and not just the earned premium
 - o 5% doesn't take return on capital into account and hence is not appropriate from a capital perspective.
 - o Each UMA will have a different capital requirement for R1 of premium written
 - o No allowance for expense inflation
 - o Some classes may be more expensive to administer than others
- Investment income:

- The emphasis should be on underwriting return and not investment profits, so an overall average is probably appropriate.
- It is most important that there is appropriate asset liability matching before considering investment return.
- It is not based on the actual investment return achieved
- Tax
 - It is not appropriate to deduct tax off before sharing the profit. The UMA is responsible for their own tax on the income they generate. From XSure's perspective, the profit share is an expense in terms of their income statement and needs to be deducted prior to paying tax. On a company level profit and losses are offset between partnerships
- 50% profit share
 - May not be appropriate
 - It may not be the best way to incentivise every partner, as each partner is unique
 - It does not appear to take minimum return on equity requirements into consideration which it needs to do.
- There is no mention regarding what happens if there is a loss
- Exposed to incorrect pricing as the fee is expressed as a percentage of premium
- It is appropriate that losses/profits are not shared between partners

Comment on appropriateness

Overall this profit share arrangement is inappropriate based on the reasons above

Improvements

- Proper, individualised reserving techniques need to be allowed for in the calculation to ensure that reserves are appropriate, especially given that the calculation is on a calendar year basis.
- Typically a contractor's all risk policy will have an uneven earnings pattern and higher IBNR's
- Commissions should be based on actual commissions per partner
- Expenses should be based on actual expenses (or percentage based)
- There should be a rand capitation figure to avoid expense overrun (i.e. fixed amount per policy)
- 5% fee: there should be proper risk based capital calculation per UMA
- An individual "use of balance sheet" fee should be determined per UMA
- Diversification may be considered to ensure Xsure understands the true capital picture
- Do not deduct tax from the calculation.
- Introduce a sliding scale for profit share and/or expenses depending on the combined ratio. (Profit percentage should not be pre-determined, but only determined at the end of the year, based on the experience)
- Legislation: losses may not be passed onto binder holders, but may be offset against profits in future years.
- Specify how losses will be attributed
- Investment income – should be based on actual return on policyholder funds (not shareholder funds' return)
- Introduce a different profit share for different lines of business
- Add a Return on Equity (RoE) calculation
- Add a TCF/persistency aspect to the calculation
- Licence fee & share of profit together need to meet capital requirements. The larger the licence fee the higher the proportion of profits that can be ceded to the unique partnership to incentivise higher profits

- Need to include a losses carried forward clause to ensure that there is incentive to write profitable business
- The profit share doesn't mention reinsurance, other than for commissions. It is advised that net results are considered and specifically stated. All aspects of reinsurance should be considered including commission, brokerage, profit share, premiums and claims.

iii)

Reserve & capital requirements, Partnership: profit sharing & relationship

Group supervision is NOT applicable in this question (not part of QIS1)

No marks for developments during QIS2 that was not included in QIS1 (e.g. ring-fenced funds)

Capital requirements are NOT calculated separately per UMA/cell.

Minimum capital requirement is NOT applicable per UMA/cell

Partnership:

- The biggest issue is that interim measures and SAM might produce opposite results for the partner. This has to be managed to avoid big swings in partner results.
- Additional expense due to resources needed to do the calculations, which will need to be included in the partnership agreements
- SAM refined classes of business and risks need to be unbundled, which may have systems implications
- This could add cost and complexity to the partnership agreements
- Discount cash flow models, partner information may not be sufficient
- Company may need extra or less capital which could impact the required terms of the partnership agreements
- Partnership arrangements will need to be re-agreed and rewritten and re-negotiated
- Xsure needs to decide whether or not to adopt Sam now (the requirements of QIS1 are not the final ones) or wait until 2014, as both will have implications
- Xsure may need to consider whether the UMA type structure still makes sense under SAM requirements or if buy outs / mergers and acquisitions are necessary.
- Effect on partnership should new requirements lead to the insurer being financially unsound (e.g. requiring additional capital, policyholder perception)
- Additional training will be required. Need to explain the impact of the new requirements on the UMA's business model
- Reinsurance arrangements may need to be restructured
- Investment strategies may need to be changed

Capital/Reserves:

- The following changes will cause a once-off adjustment to earnings and impact profit sharing. This is a one-off impact and could have unforeseen consequences for current partnerships
 - o Reserving bases: from rules based on discounted cash flow
 - o Reinsurance: no distinction under SAM between approved & non-approved reinsurance
 - o Capital: based on actual risk (and development period) and not business volumes
 - o Admissibility rules for assets: SAM recognises all assets
 - o Marketing and credit risk & operational risk now have to be explicitly taken into account for capital consideration

- The same issue will arise in 2014 when SAM is introduced.
- Diversification allowance in capital calculation increases complexity, but could reduce overall capital requirement for Xsure.
- This may be different for different classes of business
- Capital is calculated for the insurer as a whole – it is now more difficult to allocate per partner
- IBNR is now calculated on earned premium instead of written premium
- Contingency reserve is no longer needed
- Some reserves (e.g. OCR) stay unchanged
- Minimum capital increased from R5m to R10m in interim measures and R15m in QIS1

iv) Comment on appropriateness

The Pareto is good due to:

- it does sometimes give a good shape /goodness to fit for tail end losses
- it is suitable for very skewed extreme case losses

The Pareto is poor due to:

- Should not just use it. It appears that the reinsurers always use it without investigating/analysing the appropriateness
- One always needs to test goodness of fit for the exact losses being modelled. It might not be appropriate for this specific book of business
- It doesn't split frequency and severity, which could cause inaccuracy or loss of information in determining price
- Given the information provided it is probably inappropriate as a proper goodness to fit analysis has not been done.
- XSure has a full view of the gross losses and not just ceded losses and has the ability to model the excess of loss layer more accurately than the reinsurer (i.e. we could model frequency and severity separately)

Process to price the layer

Data:

- Collect all from the ground up historic commercial property claims data
- Data should include
 - Claims
 - o Loss date
 - o Peril
 - o Notification date
 - o Payment dates and amounts
 - o Claim amount (paid & outstanding reserves)
 - Premiums/exposure
 - Exposure details: property values, size, location type
 - Inception and expiry dates of policy (risks within portfolio)
 - Cover details e.g. perils covered, limits, excess etc.
- Match exposure and claims data
- Check date for accuracy and clean data if necessary

Data analysis

- Adjust for inflationary effects / trends
- Group data homogeneously both in terms of sub-groups and size of claims
- Consider and adjust for outliers
- Adjust for reporting delays and IBNR
- Adjust for changes in exposure

Model data

- You need to consider more than one approach: experience and exposure rating methodologies
- For each approach you need to calculate a claim distribution / expected claims experience
- You then need to apply the reinsurance layer to determine the risk price
- You need to consider all reinsurance aspects, including reinstatement clauses
- You then need to test goodness of fit by comparing to actual past experience

Do sensitivity tests

Take account of external factors such as being in a hard/soft market

Compare with other quotes

Once the risk rate has been assessed, you need to determine the following loadings:

- brokerage
- expenses/loadings
- cost of capital