Faculty of Actuaries **Institute of Actuaries**

EXAMINATIONS

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Subject 403 — UK Fellowship General Insurance

Paper Two

EXAMINERS' REPORT

This question tested the candidates understanding of different forms of Alternative Risk Transfer from both a policyholder's and insurer's point of view. Most candidates were able to describe some of the listed forms of ART but few demonstrated an understanding of them all. The examiners were looking for a demonstration of the ideas of ART and the effect on both policyholders and insurers. Marks were given for any sensible approach to this question which included valid points. Additional marks were given to valid points in additional to the detail given below. Many of the candidates' solutions were well structured and the examiners were generally impressed with the solutions that were given for what was a difficult question.

1 Types of ART

Self- insurance

- By far the most common form of ART.
- Company/individual does not insure and takes losses as and when they occur.
- Used mainly by corporate customers, though no reason why rich individuals should not increase the deductibles in line with increases in their wealth.
- Can be achieved by not renewing cover or, more usually, by increasing the deductibles.
- A larger company needs less reinsurance in absolute terms than a smaller one as any given loss will impact the balance sheet to a lesser extent in percentage terms.
- A fast-growing company like this one may find that the previous levels of deductibles which were appropriate at the time are no longer optimal.

Advantages to the policyholder

- Gives away less profit to insurer so improved profitability of policyholder.
- Reduces exposure to credit risk of insurers.
- Focuses greater awareness on managing risk rather than insuring it away and not worrying about it. Particularly relevant for corporate policyholders

Disadvantages to the policyholder

- Increases volatility of net assets.
- Increases capital requirement.
- May not have risk management capability.

Advantages to insurer

- Gives away less profit to reinsurer so improves net profitability.
- Reduces exposure to credit risk of reinsurers.

Disadvantages to insurer

- Increases volatility of net assets.
- Increases capital requirements.
- May impair solvency margin.

Captives

- Second most common form of ART.
- Used only by corporate entities.
- Company does not insure with third party but instead places the business with an insurance company it owns. The insurance company is typically set up for the express purpose of writing the business of its parent.
- It is effectively a more sophisticated form of self-insurance.
- Companies are typically set up in an offshore location to benefit from easier regulatory regimes,
- and tax breaks - though these are much smaller than they used to be.
- Bermuda is the largest home of captives.
- Other well-known locations are the Isle of Man, Guernsey, Dublin, the Cayman Islands.
- Onshore captives are not unknown, for example Lloyd's.

Advantages to the policy holder

- Keep the insurance profits in-house, this should improve profitability of the ceding company's accounts on a consolidated basis.
- Focuses greater awareness on managing risk rather than ceding it away and not worrying about it - this is perhaps the main reason.
- Direct access to reinsurance market/expertise.
- Reduces exposure to credit risk of insurers.
- Tax breaks in certain domiciles, such as Bermuda.
- Protected cell" companies have become legal in some territories. These permit different parents to share a single captive without cross subsidising each others' results. These help reduce the entry costs of setting up and running a captive.

Disadvantages to the policyholder

- Increases the volatility of net assets on a group consolidated basis.
- Increases capital requirement
- Complex/costly to set up and consumes management time. Choice of location has a major impact on this. Much cheaper to set up in an offshore regulatory haven than in UK.

Advantages to insurer

Not applicable — insurance company would not set up a captive.
Disadvantages to insurer
Direct threat for corporate business. World-wide insurance premiums are fairly static whilst premium paid into captives are increasing fast.

Event-triggered bond issues

- These are an alternative to traditional property catastrophe insurance and reinsurance.
- Used only by the largest corporate policyholders and by large insurers/reinsurers.
- A bond is issued that pays a certain rate of interest for a certain term. If the insured event occurs then the interest rate is reduced from then on.
- The principal amount may or may not be at risk.

- Bonds are assigned a credit rating by a credit rating agency in a similar way to the traditional bond issues.

Advantages to policyholder

- May be cheaper than traditional property catastrophe insurance.
- Taps into a larger market place. Capacity is less likely to dry up following a series of major events.
- Concept of "payback" does not exist in the capital markets so price is likely to be more stable over time.

Disadvantages to policyholder

- Complex /costly to set up and consumes considerable management time.

Advantages to the insurer: same as advantages to policyholder

Disadvantages to insurer

- Events may not exactly match insurer's own losses-known as basis risk. If the named event is a Tokyo earthquake of 7.0 or greater on the Richter scale then the insurer's losses may or may not be triggered by the same event.
- Complex/costly to set up and consumes considerable management time.
- May alienate previous reinsurers who feel they are being cut out. This may make it more difficult to place traditional reinsurance at reasonable rates.

Securitisation

Homogeneous tranches of insurance liabilities are packaged according to commonly used standards. These tranches can then be sold on to other investors, freeing up the capital of the original writer of the policies. In turn there may be an active secondary market for these securitised policies. This can be thought of as a 100% quota share agreement

Advantages to policyholder

Not applicable - only large Insurance companies would be able to package sufficient numbers of homogenous risks for this to be viable

Disadvantages to policy holder

N/A - see above

Advantages to insurer

- Frees up capital that can be used to make higher returns than it could make backing the securitised business
- Gives access to capital markets which are thought less likely to dry up in the event of major losses.
- No concept of payback - pricing should be more stable

Disadvantages to insurer

- Regulators may not allow these for solvency margin calculations
- Accounting treatment is unclear
- Complex/costly to set up. Only the largest insurance companies can afford to do this.
- Only works well for very homogenous book of business such as personal motor.

Financial Reinsurance / Finite Risk Reinsurance

- These are similar to conventional reinsurance treaties but the risk transfer element is lower.
- Used by insurance and reinsurance companies.
- Risks transfer elements may be limited in several ways:
  - having either a clause that prohibits the purchaser walking away from deal upon renewal leaving the reinsurer out of pocket,
  - having a profit commission clause close to 100 per cent and premium rates that are likely to generate a profit (hence high likelihood of P/C being paid),
  - paying the premium into a fund, which may be held by the insurer or the reinsurer, which is used first to meet any claims.

- The deals are often multiyear to help smooth results and reduce real risk transfer.
- The profits on these deals are small as a percentage of the premium price but the maximum downside is often also relatively small.
- Investment income is often a large percentage of the total profits.
- These types of treaty have been used in the past to "window dress" results, such as Lloyd's time and distance policies, by effectively introducing discounting into the result.

Advantages to policyholder — not applicable - usually purchased by insurance companies only

Disadvantages to policyholder — not applicable - see above

Advantages to insurer

- Can control amount of profits going to reinsurer.
- Often arranged as multi-year deals ensuring continuity of reinsurance capacity.
- Insurer benefits if experience is better than expected.
- Credit risk of reinsurer going bust is reduced if funds are held by insurer
- Cheaper than traditional insurance unless the traditional market is soft.
- Insurer can use them to smooth profits by releasing profits from off-balance sheet funds. This is possible only if local regulations allow positive balances held in funds associated with these treaties not to be counted as an asset in the balance sheet.

Disadvantages to insurer

- Care is needed to ensure these deals constitute genuine insurance contracts.
- Risk transfer is lower than conventional reinsurance so protection for extreme events may not be sufficient.
- Credit risk if insurer's fund is large and held by the reinsurer.

Cat exchanges

- These are market places where insurers can swap property catastrophe exposure with each other.
- The two parties to the deals may or may not known who the counter-parties are.

Advantages to policyholder — not applicable - used by insurers and reinsurers

Disadvantages to policyholder — not applicable - see above

Advantages to insurer

- May be cheaper than purchasing traditional property catastrophe reinsurance cover.
- May be useful to achieve a better spread of business. Particularly for a regional insurer.

Disadvantages to insurer

- No guarantee of cover in the future. May be nervous about releasing data to a potential competitor, despite the guarantees of security.

CBOT Exchange Cat Options

- These are financial options when the underlying indices are the property claims services (PCS) US Catastrophe indices.
- Used as an alternative to traditional property catastrophe treaties by insurers (and large corporate customers)
- There is a small but growing trade in these in the CBOT. Most deals are still over the counter, however, so information on the volumes is not publicly available.
- Used by a large corporates and insurers/reinsurers.

Advantages to policyholders

- Access to a large pool of capital, hence more guarantee of continuity of cover.
- No concept of payback in the capital markets hence greater stability of pricing compared to the traditional reinsurance market.

Disadvantages to policy holders

- Currently bid/offer spreads are large and the traditional marketplace is cheaper.
- Basis risk that profit on option will not exactly offset catastrophe losses.
- Currently not accepted as reinsurance in the UK, hence no solvency relief possible using them.

Advantages to the insurer: same as the policyholder

Disadvantages to insurer

- Currently not accepted as reinsurance in the UK, hence no solvency release possible using them.
- Currently bid/offer spreads are large and the traditional marketplace is cheaper.
- Bases risk that profits on options will not exactly offset catastrophe losses.

Weather derivatives

- These financial instruments pay out based on the average temperature each day in a given region.
- Typically they cover heating degree days (HDDs) or cooling degree days (CDDs). For example, a contract may pay based on HDDs with a strike price of, say, 65 degrees Farenheit with a tick amount of £1. The contract would pay out £5 if the average temperature in any given day is 60, £10 pounds if the average temperature is 55, but would pay nothing if the average temperature is 65 or above.
- HDDs and CDDs are the most common type but the index used can be based on any quantity that is measured by weather stations such as rainfall, cloud cover, sunshine duration etc.

Advantages to policyholders

- Cheaper alternative to purchasing weather insurance which is either not available or may be too expensive

Disadvantages to policy holders

- Basis risk (e.g. it may rain at the insured's premises but not at the weather station a few miles away).
- Only available for larger companies

Advantages to the insurer

- None

Disadvantages to insurer

- Competes with traditional weather insurance

Threats to insurance company from ART

- As existing insureds become bigger, they may use ART rather than buying insurance in the conventional market place. This will reduce the total global insurance premium and may signal a major shake out in capacity.
- ART may disrupt the traditional insurance cycle. In the next hard market policyholders may elect to use ART rather than pay over the odds for traditional insurance coverage being offered by insurers trying to recoup past losses.
- This means that insurance companies will need to learn how to make sufficient money at all points of the cycle.
- Competition from ART may force insurance and especially reinsurers to abandon the concept of payback. If this were to happen then accurate pricing would take on far greater importance as insurers/reinsurers could not rely on increasing the rates in following years to compensate for poorly priced current risks.

This question was generally answered quite well. Most of the solutions given followed the structure hinted at in the question. The question was aimed at making the candidate think about a new product which they may have had little knowledge about. Most candidates scored well on the marketing and pricing issues but did not make sufficient remarks on the product features or selling issues. All valid points in addition to the detail given below were awarded marks. There were some candidates who assumed the new product was the same as Mortgage Indemnity Guarantee. Although this meant that marks could not be gained for some of the points in the solution, a good mark could still be gained by making enough valid comments.

2 **Authorisation**

If the insurer is not already authorised to sell such business then it must seek to gain authorisation for those classes included in this type of contract in accordance with the country's regulations on the control of writing insurance.

Market considerations

The product is aimed at those customers who already have or will have a mortgage with the insurer. This new production may be restricted to new mortgagors only, or it may be made available to any existing mortgagor as well. At launch date it needs to be determined whether or not existing mortgagors will be allowed to take out the cover, and if so there will be a period during which the option must be taken up, after which it will lapse. Similarly for new mortgagors, they may be a period during which it is made available at the start the loan, and after that period no such cover will be able to be purchased. Otherwise selection and anti-selection would be a major issue.

As well as selling this product to its own mortgage holders, it could be extended so that it was marketed to the customers of other lenders. Not all lenders will be in a position to provide such insurance cover, and some will need to link up with an insurer. The cover could be sold on an individual or block policy basis. It could be that mortgagors will be able to choose the provider of their insurance. If similar products are already sold by the insurer up on a stand-alone basis than the marketing of this new product will have to bear this in mind.

Not all mortgagors will need cover such as this, as they will have other methods of financing losses covered by such a policy. Hence the likely penetration of this policy has to be considered.

We will also have to consider how actively the new product will be marketed, as the government has stated only that it has to be provided, rather than actively sold.

Product features

We need to consider the perils that are likely to be insured. The most likely cover will be for accident, sickness and unemployment (ASU), or it may be that an unemployment only product is also developed.

In the case of unemployment cover, careful consideration has to be given to the self-employed and contract workers. There is a new for a very careful wording as to what constitutes unemployment in these cases.

We need to consider the period of cover under the policy. That is, is it an annually renewable contract, or a single premium policy covering a number of years, or covering the length of the mortgage? If it is an annually renewable contract, then we must consider the options available for not renewing an individual's cover.

We need to consider the benefit levels. Both the amount paid and the period during which payments must be made must be considered. The amount paid may be a fixed amount as stated at the start of the policy year, or the current mortgage repayments, possibly capped at some upper limit. In addition, other related costs may be included in the cover, such as life assurance premiums or household insurance premiums.

There will be a waiting period in during which no claim will be met. In addition, in the case of sickness any pre-existing health conditions may not be covered. Also, in the case of the unemployment cover, the insured will have to have been in employment for, say, six months, before a valid claim could be made. There will also be an exclusion period, such as thirty days at the start of the policy during which no insurance claim will be valid. Once a claim has occurred, then payments will be made for a set period of time, such as twelve months, after any waiting or exclusion period. Clearly any such payments would cease following the return to work after an accident. There will be an age limit for new business, with only 18th to 59-year olds being acceptable.

The product could be made available on a single or joint basis. In the case of joint mortgagors, they will have the choice of splitting any benefits according to a predetermined proportion assigned to each party.

If a period of sickness follow a previous period not more than, say, three months earlier, than it should be counted as a continuous period for calculating the benefit payable. Also unemployment following an accident could also be considered a continuous claim.

Cover would terminate if the mortgage terminated, for example because the outstanding loan was paid off, or the insured moved house and a new mortgage taken out.

Any terms used in the contract would need to be clearly defined. For example, what is unemployment in the case of the self-employed, or contract work, or what happens is more than one job is held by the insured?

We also need to consider what, if any, endorsements would be allowed during the policy year. For example, can the level of cover be changed? Again we need to be aware of being selected against.

Administration

If business is sold to mortgagors of other lenders, then details about how the whole business is administered need be considered.

Will the same contract and premium rating structure apply as for the insurer's own customers?

How is premium to be collected? Will it come direct from lender to insurer or be collected from borrowers?

Will new and existing mortgagors of the lender be entitled to buy the product, and if so will the terms be the same?

What rate of Commission must be paid?

What management information and control totals will be imposed?

Which party would carry out the policy and claims administration?

Will there be any profit Commission?

What termination clause will be inserted into a new agreement? What procedure will be followed in the case of the dispute between lender and insurer? Even if selling only to our own mortgagors, we still need to consider outsourcing the claims handling, as such experience may not be available within the insurance company.

Selling Issues

Insurers will have to comply with any general insurance business code set up in the country. In particular, the product proposed should be suitable for the customers' needs and resources. The seller therefore needs to make sure that a mortgagor understands the levels of risk that he faces as a homeowner. In particular, how would he keep up mortgage repayments if he lost income as a result of accident or unemployment. Therefore the seller should address:

- security of customer's employment,
- level of equity in the property,
- level of sickness cover from employment,
- savings/ alternative sources of income,
- other forms of insurance,
- other benefits, such as income support.

The seller must explain the policy terms and conditions to the customer. In particular, the seller must explain the level and type of cover and the restrictions/exclusions the policy.

Clearly there are many grounds for mis-selling to occur and every conceivable form of mis-selling meat to be considered so that the non- life insurance industry is not rocked as has been the pensions industry in the UK recently.

Pricing issues

First consider some initial pricing issues.

This is a type of insurance in which the prospective insured has an option of purchasing or not. Hence the most likely customers will be those who are risk averse.

If we are considering an annually renewable contract, then those customers would perceive the risk to reduce over time would be more likely to lapse the policy, and hence there is a danger of selection creeping in. The poorer risks are likely to stay, and over time profits could well fall if an active pricing policy is not used. Also, in times of recession, or likely recession, there will be a greater take-up rate. These factors need to be considered when examining the probability of claiming, and the timing of claims.

We need to consider what rating factors are likely to be used. The most likely are:

- age,
- occupation,
- loan to income ratio,
- loan to value ratio,
- geographical area.

In order to derive a risk premium, any appropriate internal data will be used with the usual factors regarding past experience being considered. For example: period of data/out of date, large claims, trends, inflation. If little or no internal data is available on the need to look to an external market source. Additionally, we would consider the premiums being quoted by other insurers, while considering the level of cover that they offer.

After having obtained a risk premiums to our best ability, allowance would then be made for commission, expenses, profit, contingencies and investment return. In order to smooth out fluctuations in premium rates over time we would need to form a view of the average likely claims cost during a full economic cycle. This is akin to household rating methodology in respect of natural pearls. However, care would be needed if our competitors were not following this procedure, but were instead looking at the very short term. In that case we would be relatively cheap when risks were high and vice versa. This would most likely lead to selection against us.

In looking at loadings for expenses and so on, we need to project volumes of exposure and consider per policy and per premium loadings. The premium would then be expressed as so much per £100 benefit. If benefit is based on current mortgage repayments then we need to consider adjusting the premium payable during the policy year to reflect changes in benefit.

Claiming

When submitting a claim proof will be needed. This should be in the form of a redundancy notice or medical report as appropriate. The company will follow any principles set up by a recognised body, such as the AB I in the United Kingdom, in respect of settling claims promptly and efficiently using suitably experienced resources. In this respect external claims handling services may be needed.

We need to consider what claims information should be kept to help with our future rating.

We need to consider whether payments are made to the insured or applied directly to the mortgage repayment.

General

Any complaint procedures should be clearly set out in the documents.

The insured has been told that any changes in his circumstances should be notified to the lender/insurer immediately: for example a change of job or moving from employed to self-employed.

Any cancellation rights of the insurer should be set out.

A cooling-off period of, say, 14 days should be allowed.

The insurance contract will be governed by the law of the country.

Possibility of purchasing reinsurance. This would enable the company to gain experience in this new area, if it is a new area. We would need to carry out a cost/benefit analysis.