RESERVING AND PRICING FOR LARGE CLAIMS GISG WORKING PARTY

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LARGE CLAIMS

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SUMMARY

- The report aims to provide a guide to new actuaries and non-actuaries, and encourage debate amongst experienced actuaries as to the treatment of large claims.

- Large claims can be identified as those having a significant impact. This definition is subjective and contextual. This is illustrated through an example describing "Confusion Insurance plc".

- Reserve calculations must consider both outstanding reported claims and incurred but not reported (IBNR) claims.

  Outstanding claims can be estimated by claims assessors as case estimates, which evolve as further data becomes available. Calculations allow for legal, financial and economic factors. Lack of qualitative data and few homogenous examples limit the input of actuaries to providing present values of future income, pension or care costs.

  IBNR reserves can be estimated using statistical methods. If large claims data is included, the projected reserves will include allowance for large claims. However, very large claims may distort the results and may require a separate approach, based on expected frequency and severity, or even exclusion if such claims are unlikely to happen again.

- Pricing should include allowance for large claims, although any explicit margins may be removed for competitive reasons. Analysis may involve top-slicing claims above a threshold and spreading the value over all policies.

  Loadings for large claims can be by policy, exposure or premium. There are dangers in using these without adjustment if the threshold for "large claims" is varied. Statistical distributions may allow for extreme events in their tails and form a basis for pricing, but there are dangers in extrapolating beyond experienced claims values.

- Reinsurance provides protection from large claims. However, duty of care, UK reporting on gross and net bases, credit risks and cash flow considerations do not allow us to ignore the issue

  Outwards reinsurance costs might be used for inwards insurance pricing, although the volatility of reinsurance costs may need to be smoothed.

Why the Working Party?

1   To summarise current actuarial practices:
   - for the benefit of actuaries who are new to the area;
   - to explain our methods to a non-actuarial audience and hopefully gain greater credibility and influence with business managers;
   - to highlight current areas of debate and to promote a discussion within the profession of the different approaches that may be taken.

2   Actuarial input is well accepted in stable attritional claims analysis, but less so in analysing large claims, which can have a greater bearing on underwriting results.

3   To put forward a systematic approach to the assessment of the risk of large claims.

4   To put forward a systematic approach to quantifying the risk tolerance of an insurance company and using this to guide the setting of underwriting guidelines and the design of reinsurance programmes.

5   With an ever more rapidly changing natural, economic and social environment, the profession needs to develop more systematic and adaptable approaches to modelling risks, rather than simply paying heed to past experience.

6   To gain greater credibility for a technical approach to pricing risks, that can guide business in the way actuaries react to the (often contrary) market pricing.

1   What is a large claim?

1.1   Introduction

1.1.1   The definition of a large claim is, out of necessity, a rather vague one. Not only, from an actuarial perspective, does it depend on the purpose of what you are doing, but more generally it also depends on who you are.

1.2   Confusion Insurance

1.2.1   Consider a hypothetical example of Confusion Insurance plc, a U.K. based composite insurer operating across many territories. The directors of Confusion declare in their Mission Statement that, because Confusion is a group with a multi-billion pound premium income, that "we will reinsure only against losses so large that they could otherwise affect our strategy".

1.2.2 Such a definition could be difficult to quantify in monetary terms, but let us suppose that they do so and decide that £100m is "large", and propose a single, world wide excess of loss programme with a retention of £100m. The directors pat themselves on the back at being so visionary.

1.2.3 On hearing of this proposal, the managing director of the American subsidiary, US Confusion Corp., is aghast. Firstly, US Confusion is only capitalised at £70m and could therefore be wiped out by a single Florida hurricane. Secondly, and a matter much closer to his heart, his pay is profit-related, and a loss of more than £3m could mean no year end bonus at all. Therefore, to make sure of his bonus, he suggests that all claims over £1.5m should be considered large.

1.2.4 An underwriter overhears the discussion, and is worried. Her bonus is based on the profitability of her own book of business, and a large loss for her of £500,000 could mean no bonus. It could also put her job in jeopardy, as it would then be the third year in a row when the loss ratio on her portfolio has been over 120% and the Finance Department is looking to make redundancies.

A client with a 50 vehicle motor fleet insured with Confusion Insurance for a premium of £20k is involved in renewal negotiations. The client has had a good claims record for the last 4 years until it had a recent bodily injury claim for £150k. The client wants the underwriter to exclude this claim from the experience of the fleet in assessing next year's premium as it was a "one-off" event. He has threatened to cancel the policy (and the associated profitable property insurance) if the fleet premium increases.

1.2.5 At the Annual General Meeting of Confusion Insurance plc, one shareholder gets up and says, "I prefer a large claim to be defined as £500m. A claim smaller than this is no threat to Group solvency, which is my only concern. When you reinsure, the cost of paying claims merely gets transferred between Confusion and its reinsurers, in which I am also a shareholder. Once the expenses involved in all this money swapping are allowed for, I can only lose in the long term from you trying to smooth your profits."

1.2.6 In conclusion, it is relatively easy to look at an institution such as an insurer from the outside and think that everyone is working together on a single group strategy. The reality is that office politics get in the way, as each individual has his or her own interests. The question of "what is a large claim" is but one aspect of this. It depends on who is asking, and on your point of view.

2   **Reserving for large claims**

2.1   Principles of Reserving for Large Claims

2.1.1 This topic consists of approaches to the financial provisions for large claims. Having decided upon the definition of large, large claims can be subdivided into:

2.1.1.1 claims that have occurred and have been notified to the insurer (outstanding claims)

2.1.1.2 claims that have been incurred but not reported (IBNR claims)

2.1.2 The main approach used by most companies to estimate outstanding reported large claims is to use case estimation. For IBNR claims, statistical methods will be used. The reserve for large unknown claims can be implicit as part of an overall IBNR reserve or can be considered explicitly by considering large and small IBNR claims separately.

2.1.3 Historically actuaries have been mainly involved in the estimation of IBNR reserves. Case estimates have traditionally been calculated by members of the claims department. More recently within case estimation actuaries have been involved in the calculations of multipliers for commuting income to cash sums. An example is the use of Ogden tables. Also actuaries sometimes get involved in the calculations of the loss of pension rights.

2.2 Case Estimation for Reported Claims

2.2.1 Having been notified of an accident the insurer will go about evaluating the financial cost of any potential claim. This process can involve many different parties and can take some considerable time, particularly as the process for large claims will inevitably involve solicitors.

2.2.2 Initially the amount of information available on which to assess a financial provision may be limited. At first all that is generally available is an accident report form from the insured. However the insurer can start to investigate the incident even before a claim has been made from any third parties.

2.2.3 As examples, for personal motor insurance it will be possible at an early stage to talk to the policyholder, the police officer that attended the scene (if any) and gain information on the injured parties from the hospital that is involved. For an Employers Liability claim the employer will be a major source of information.

2.2.4 At the outset of the process the case assessor is looking at the potential for a claim. This will involve assessing the range of possible costs and choosing a level appropriate for the information that is available. Over time and as more information becomes available the provision will be reviewed and refined.

2.2.5 Case estimation involves a combination of assessing information and using judgement to determine the provision. There will be a number of

questions that need to be answered before assessing the provision. Examples of the types of questions a claims assessor may ask himself for a bodily injury motor insurance claim include:

- when did the accident occur?
- how did the accident occur?
- who are the parties involved?
- has a claim between received from a third party?
- who is liable or likely to be liable?
- is there any case for contributory negligence?
- have the insurer obtained medical opinions on the injuries?
- has the condition of the injured party stabilised?
- how long is the injured party expected to live?
- will the claimant return to work?
- if not who will look after the claimant?
- when is it likely to settle?
- what is the third party's solicitor looking for in terms of a settlement?
- does the insurer need expert opinions to aid the assessment of cost e.g. from occupational therapists, chiropractors, osteopaths, physiotherapists and actuaries?
- what is the philosophy of the insurer to this type of claim?
- is the case likely to go to court?
- if so, is it possible to settle out of court and save on solicitors and other costs?
- if not, what is the level of payouts for similar types of claims on recent settlements?
- what inflation rates should be used in the calculation?

2.2.6   Having answered questions of this type the assessor will need to estimate:

-   General Damages

    This covers items relating to the injury itself, (i.e. expected payments for the injury, any pain and suffering, any loss of amenity as a result of the accident etc.).

-   Special Damages

    These are split into damages up to the date of settlement of the claim, (for which expenses and losses are known), and expenses/losses expected to be incurred in the future.   They cover items such as:

    -   Loss of earnings - the major costs
    -   Rehabilitation and care
    -   'Smith award', (damages in respect of future loss of employment opportunities)

- CRU awards which have been increased as a result of the change in the law which came into effect October 1997
- Do-it-yourself, (e.g. window cleaning, gardening, decorating etc., if the injury make these tasks impossible)
- Travel, (i.e. expected increased travelling costs as a result of the injury)
- Aids and appliances, (e.g. stair lift, bath lift etc.)
- Additional housing costs, (e.g. the extra cost incurred if a different house or adaptations to the existing house are required).

- Costs

  These are the costs associated with the case. They cover such items as:

  - Legal costs of the case both for the insured and the third party if the case is lost
  - Costs of any external loss adjusters
  - Fees for any expert opinions
  - Hospital charges

2.2.7 It is possible that there may be some offsets to the total cost to allow for
- contributory negligence
- excesses on the policy
- salvage costs

2.2.8 Having assessed the final cost it is then possible that reinsurers will need to be informed about the claim. They may be able to assist in the process of estimation where there is a great deal of uncertainty. It is likely that they could have been involved in a similar case since they will reinsure the business of many insurers.

2.2.9 For a particular claim the case estimate is always changing and can frequently be updated. The interval at which the case estimate does actually alter will depend to some extent on the financial impact of the updated case estimate.

2.2.10 For example, the improvements in medical care over the last ten years or so have caused an increasing number of large claims. Advances in technology have improved the ability of both paramedics and hospitals to save lives. This means that claims which would have been in respect of a fatality ten years ago may now need to incorporate the cost of long term care and possibly rehabilitation.

2.2.11 As a footnote to this section to case estimation the amount of actuarial involvement is questioned. On one hand it may bring an added dimension to the process. Actuaries have been used in designing

systems for setting average amounts for non-large claims. On the other it can be argued that the actuary can consider the incurred estimates with a sense of independence. However for large claims there is a large amount of qualitative data which needs to be assessed and arguably this needs to be assessed by a claims specialist.

2.2.12 Assuming that there is stability over time with the case estimation process, the actuary can look at run off patterns of incurred claims to settlement. This will enable the actuary to more adequately allow for IBNR claims. For large claims there may not be a sufficient volume of data to be able to do this and other methods may be needed.

2.3   IBNR Reserves for Large Claims

2.3.1 The overall IBNR reserve that the insurer needs at a reserving date will be established using statistical methods. Large claims may not be explicitly allowed for. It may just be incorporated implicitly depending on the method chosen for the calculations.

2.3.2 Statistical Methods

2.3.2.1 There are many methods available for calculating IBNR reserves. Some are more complex than others. For illustration some of the methods available include:
- loss ratio targeting including Bornhuetter Ferguson methods
- link ratio techniques
- frequency severity analyses

The above methods are well documented and it is not proposed to go into detail regarding the calculations involved.

2.3.3 Implicit Allowance for Large Claims

2.3.3.1 Some methods of calculating IBNR reserves could involve implicit allowance for large claims. An example would be the basic chain ladder method. If the triangulations of paid and incurred claims did not exclude large claims then the resulting IBNR amount would include large claims.

2.3.3.2 The decision over whether to include or exclude large claims in the reserving triangulations will depend on the class involved and the incidence of large claims. If there have been a high number in the past and the link ratios from year to year are not distorted then it may be acceptable to leave the triangles unadjusted.

2.3.3.3 Where the frequency of large claims is low and the link ratios are distorted then large claims could be excluded and projected separately. Otherwise the link ratios will need to

be carefully chosen in order to achieve a suitable IBNR reserve.

2.3.4 Explicit Allowance for Large Claims

2.3.4.1 Frequency severity analysis is the main method of explicitly allowing for large claims within an IBNR reserve. Having chosen the large claims limit for the current accident year it is possible to calculate the equivalent indices in previous years assuming certain levels of claims inflation.

2.3.5 Claim Frequency

2.3.5.1 The claim frequency can be calculated for each of the relevant years for which data is available. The earliest, and more complete, years could be used to estimate claim frequencies for the more recent years. If trends are evident then these can be incorporated within the selected claim frequencies.

2.3.5.2 The historic claims frequencies thus calculated then should be adjusted to allow for changes in exposure and any changes in terms and conditions.

2.3.6 Claim Severity

2.3.6.1 The average cost of claims can be analysed on the same basis as the calculations for claims frequency. Assumptions will need to be made for any outstanding claims to project them to ultimate. Having derived the estimated ultimate cost of large reported claims selections can be made for the IBNR claims. Allowances can be made for any known historical relationship between reported and IBNR claims.

2.3.7 Contingency Margins

2.3.7.1 The inclusion of contingency margins will very much depend on the purpose of the reserving exercise. For example if the reserves are for the published accounts a more prudent approach may be required. A comparison will be the reserves to establish a more realistic position for internal management to assess the performance of the business.

2.3.7.2 This is perhaps where a link can be made to the pricing of the business. Large claims need to be incorporated within the pricing of insurance business. The work for reserving may be used as the starting position for this work but at a higher level. For reserving the large claims of a class may be assessed as a whole. For pricing we may be considering just one risk within that class.

2.3.8   Reinsurance

2.3.8.1 The actuary has a number of approaches to the treatment of reinsurance. Firstly the actuary can calculate gross and net triangulations and project both. The difference between the two is the implied reserve for reinsurance.

2.3.8.2 Secondly if large claims are being projected explicitly then for reported claims the claims will be "passed through" the reinsurance programme to establish the amount to be recovered. The area in which assumptions are needed will be for the claims which have not yet been notified to the insurer. Here the actuary will need to assess the proportion and amounts of claims which will exceed the retention level.

2.3.8.3 In both cases, the actuary needs to tests the reinsurance reserve for reasonableness.

2.3.8.4 Throughout the process of assessment of expected recoveries from reinsurance for the purpose of estimating the net of reinsurance reserves, care should be taken to properly allow for the terms and conditions of the Reinsurance Treaty, for example, it will be necessary to allow for the serious claims inflation clause in the estimation of the amount to be recovered on each claim.

2.4   Balance Sheet Reserves

2.4.1   Having reviewed the data and carried out calculations the actuary will put forward his recommendations. It is then up to the management of the company to decide the provisions which will be booked. The directors will need to bear in mind any constraints there may be e.g. the level of reserves the Inland Revenue will allow.

2.4.2   If a different level of reserves is being booked compared to the projections of the actuary then this gives the company more scope to manage the overall results of the company. The company is then able to smooth the impact of large claims and arguably achieve a more stable stream of profits than might otherwise be the case.

3   Notes on current pricing

3.1   Introduction

3.1.1   There is universal acceptance that large claims distort any pricing analysis and therefore need to be 'dealt with' before an analysis can

begin. There is also universal acceptance that large claims should be funded for by a contribution from all risks in the portfolio. However, it is often the case that when the market is particularly soft the large claims load is one of the first parts of the premium to be 'forgotten' about. Different approaches are taken depending on whether you are assessing an individual risk or a portfolio of risks.

3.2   There are three basic approaches to 'dealing with' large claims:

a.   Top-Slicing / Capping
b.   Removal
c.   Experience Rating

3.2.1   The steps in the process are as follows:
• Select a truncation point
• Top-Slice all claims at the truncation point
• Fit models to top-sliced data
• Add on load to premiums to allow for excess cost over truncation point

3.2.2   For the truncation point selection there are a number of approaches which can be followed:
i)   Plot the claim size distribution and read off the value above which a fixed percentage of the claims lie. e.g. 95% of claims are below £50,000 therefore cap all claims at £50,000
ii)   Select an arbitrary round number
iii)   Select a point equal to the reinsurance retention limit. This can work if the reinsurance retention limit is particularly low, however in practice this is unlikely to be low enough to remove the distortion caused by larger claims.

The truncation point will generally be lower for assessing relativities for pricing purposes than for reserving as the need for more stable results is greater.

3.2.3   Top-slicing all claims at the truncation point:

EITHER the claims can be top-sliced at the truncation point and the excess discarded from the analysis.
OR the excess over the truncation point can be spread proportionately across all of the claims up to that level.

3.2.4   Removal of large claims

3.2.4.1 All claims which are considered to have a distorting effect on the analysis are removed in their entirety.

3.2.4.3 When assessing a portfolio of risks top-slicing appears better justified than removal. If the truncation point is £50,000, why

should a claim of £49,999 be kept in the record and one of £50,001 be discarded?

3.2.4.3 When assessing an individual risk, however, there may be large claims where the circumstances which led to the claim simply cannot recur and this can be justification for removing the total claim.

3.2.5 Experience Rating

3.2.5.1 An aim of the underwriter is to remove any distortion that may be present in the claims experience, and the most common cause of such distortion is the presence of large claims. The underwriter may wish to remove totally those claims which distort his analysis, but will aim not to remove those claims that can be considered to have a reasonable chance recurring.

3.2.5.2 However, underwriters come under a great deal of pressure, both from sales targets and from brokers to remove or cap claims which are above average but which may nevertheless recur.

3.2.5.3 These points show the greater variety of methods that are employed by commercial insurance underwriters to 'deal with' large claims as compared to the personal lines underwriters.

3.3 Loading for large claims

3.3.1 These can take a wide variety of forms
i) Fixed monetary amount per policy.
e.g. £50 per policy

ii) Fixed monetary amount per unit of exposure.
e.g. £20 per vehicle or £20 per private car and £100 per three ton truck

iii) Fixed percentage load applied to the risk premium applicable to all risks in the portfolio analysed or segment of the portfolio.
This approach is common where a GLIM methodology is being used to determine the rates for a portfolio of business.

iv) Variable percentage load applied to the risk premium, assessed on a risk by risk basis dependent upon the selected truncation point.
e.g. Truncation point of £50,000 = load of 10%, Truncation point of £100,000 = load of 4%.
This approach is sometimes used for larger commercial risks where risks tend to be individually experience rated.

v) Variable percentage load applied to the risk premium, assessed on a risk by risk basis dependent upon a number of rating factors.

This approach might be appropriate where it was believed that certain characteristics of a risk made it more likely to experience a large claim.

3.3.2 Care should be exercised where fixed monetary amounts or percentages are used when the underwriter had freedom to vary the truncation point as this will lead to over or under funding.

3.3.3 If a fixed momentary amount is used it tends to be in the form of a simple round figure and for this reason tends to be reviewed infrequently. Some companies have been using the same fixed monetary loads for many years failing to reflect the effects of claims inflation.

3.4 Calculation of Large Claims Loadings

3.4.1 Fit an appropriate statistical distribution to actual large claims data. This requires adequate volumes of large claims, and so the definition of a large claim must be carefully selected. Several years of past claims data can be used, inflated to current covers and exposures.

3.4.2 The distribution is used to estimate the amount of large claims funding required, and this can be divided by Policy Count, Exposure or Premium, to derive the large claims loading (using the Premium can distort the result due to the insurance cycle, but nonetheless it is often done).

3.4.3 The use of a statistical distribution may be used to cater for claims larger than any previously encountered, although the problems of working in the tail of a distribution should not be ignored.

3.5 Catastrophe Funding

3.5.1 For property business, a catastrophe may typically be a large collection of small/ average claims caused by a single incident. The methods used to derive large claims loadings are inappropriate for such collections of claims.

3.5.2 Weather claims can be isolated and the average monthly cost derived. This is an effective way of smoothing out incidents and ensuring that rates do not over-react to a single large event such as the 1990 storm.

3.5.3 Major catastrophes, such as the 1953 East Coast floods, are so rare that past data cannot be used as a guide to the future. GIS systems can be used to model the likely losses under the various scenarios, but the likelihood of such scenarios is very difficult to predict.

3.5.4 One use of GIS systems is to identify high risk areas and take rating action to reduce exposures in such areas or ensure that an adequate premium is charged.

3.6   Pricing Cross Subsidies

3.6.1   As mentioned earlier, in a soft market the large claims load is often one of
        the first parts of the premium to be forgotten about. It is thus common for
        the large claims load to be used to cross subsidise different classes of
        business or different types of risk within each class. Competitive
        pressures will determine what premium must be charged to retain market
        share, and so the large claims load can be squeezed in particularly
        competitive sectors of the market. This position can only be maintained if
        other sectors of the portfolio are able to provide a cross-subsidy.

3.7   Price Elasticity

3.7.1   Whilst a catastrophe weather incident or a spate of large claims may not
        affect our view of future claims, it can often permit insurers to get away
        with a price increase.

4   Reinsurance

4.1   Introduction

4.1.1   There is an argument that one way to at least superficially reduce or avoid
        the problems of reserving and pricing for large claims is by reinsuring
        them, typically using surplus and excess of loss reinsurance (which are
        the types of reinsurance primarily considered here). It would then seem
        that this passes the responsibility of dealing with large claims analysis on
        to the reinsurer. Since we have seen that the notion of "large" depends on
        one's point of view, it is quite likely that the reinsurer (who often is bigger,
        and more diversified both territorially and by type of business than the
        cedant) will not regard them as large. However, even after reinsuring,
        insurers still have to deal with large claims in one way or another and so
        the viewpoint that reinsurance takes away all of the problems is not
        strictly correct.

4.1.2   For example, reserving in many territories (including the UK) has to be
        done both net and gross of reinsurance. Therefore the need to reserve a
        portfolio containing large claims can-not go away, although the purchase
        of reinsurance can reduce the uncertainty in estimating bottom line
        profitability.

4.1.3   How can you be sure that reinsurers are not overcharging for getting rid of
        the issues of large claims? The pricing of large claims still has to be
        addressed, but the nature of the issue changes to one of assessing the
        value for money from purchasing coverage.

4.1.4 Even when reinsurers' prices are reasonable, expenses are incurred from using them compared to retaining premiums, in terms of administration, brokerage and chasing reinsurers for recoveries.

4.1.5 If reinsurers are unable or unwilling to meet claims, the problem of reserving for large claims may revert on to the insurer again. Note also that the issue of bad debts is one which will need to be addressed in the reserving process.

4.1.6 So, although reinsurance has to be considered in the context of dealing with large claims, it is clearly no panacea.

4.2 Pricing and Reinsurance

4.2.1 The calculation of a premium which you are willing to pay for reinsurance has all of the difficulties of pricing large claims on inwards business. Indeed the difficulties are more severe because the large losses can no longer be hidden within a mass of small claims.

4.2.2 The negotiating process between insurer and reinsurer as to the cost of coverage can easily be an uneven one, as the reinsurer has advantages over the insurer:
- (for non-catastrophe business) it generally sees details of similar large claims from other cedants and can therefore actuarial pricing can be based on more data, and therefore in the statistical sense is more credible.
- (for catastrophe business) as catastrophe coverage is a speciality of reinsurers rather than insurers, reinsurers have more interest in investing in state of the art Geographical Information Systems (GIS) models, which attempt to get around the difficulties of pricing large claims by studying the underlying propensity for claims.
- In order to even up this playing field, the insurer can and often should get help from a substantial reinsurance broker, who has the same panoramic view of large claims as reinsurers and usually has GIS systems as well.

4.2.3 Once the reinsurance strategy has been established and the cost of coverage budgeted, this cost in some way should be built into the insurer's inwards pricing. However, there are a few alternative ways to do this, and it is not obvious to us as to which method should be used. Besides, we still have to work out what to do with claims up to the retention level.

4.2.4 Firstly you could load inwards premiums for the expected reinsurance claims. This is, after all, what you would do if you had not bought any coverage, and gives consistency for various retention levels. However, it does not allow for reinsurance-related expenses, brokerage and the reinsurer's profit margin.

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4.2.5 Therefore, a better alternative seems to load for the expected reinsurance premiums payable in the year ahead. The problem with this is that the reinsurance cycle seems to have greater extremes than the insurance equivalent, and could lead to significant swings in the insurer's inwards pricing every January the 1st (or whenever the insurer renews its reinsurance). This is difficult to explain to policyholders, who may know little and care less about reinsurance.

4.2.6 Alternatively, the insurer could estimate the underlying reinsurance premium cost, adjusted for the reinsurance cycle. This would be an interesting task to estimate, and a rather complex one.

4.3 Reserving and Reinsurance

4.3.1 The estimation of net reserves can be subject to less uncertainty than the corresponding gross reserves, as a material amount of the uncertainty associated with reserving is a problem passed on to the reinsurers. This is explicitly recognised by Guidance Note GN12 of the Institute and Faculty of Actuaries.

4.3.2 However, the estimation of net reserves can be complicated where the reinsurance programme is complex (such as where there are top and drops), and recoveries and reinstatements both have to be correctly allocated.

4.3.3 Indeed, there can be situations where the gross reserves can be estimated with more certainty than the net reserves. For example:
*   when there is a legal dispute between insurer and reinsurer as to whether one or many losses have occurred according to the wording of the treaty
*   when the coverage is on a franchise basis, in respect of a recent loss which   may or may not reach the franchise.

4.3.4 As mentioned above, the risk of bad debts on reinsurance recoveries also had to be dealt with when considering large claims. This is being dealt with by another working party.

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Reserving & Pricing for Large Claims Working Party

Appendix

Reserving Questionnaire

Questions and Distribution

The reserving questionnaire was sent to a large number of insurance companies, consultancies and Lloyd's syndicates. The questions were designed to establish some of the principles being used by companies in the UK regarding the treatment of large claims. The questions asked were as follows:

No.	Question
1.	Are large claims separated from the attritional claims within your reserving data?
2.	If large claims are excluded from the reserving data, how are they defined?
3.	For large notified claims, how are outstanding claims reserves calculated?
4.	If large claims are treated separately for reserving, what methods are used to establish IBNR reserves for large claims?
5.	How is claims inflation allowed within the reserving for large claims?
6.	How is reinsurance allowed for within the reserving process?
7.	How are bad debt provisions allowed for within the company's balance sheet provisions?

Results

The results of the reserving questionnaire have been divided into the following four categories. Within the four categories, each reply has been allocated a number and is shown on a separate page.

1.	Personal Lines	Replies 1 to 8
2.	Commercial Lines	Replies 9 to 14
3.	London Market	Replies 15 to 17
4.	General replies	Replies 18 to 20

Conclusions

Generally the conclusion from the survey is that the treatment of large claims depends on the quality of data available. Virtually all the replies indicated that large claims would be treated differently if they could be identified. Some

companies only consider large claims which they describe as exceptional. Others have a more defined criteria.

Even if large claims are identified, some companies are just considering the sensitivity of the results including and excluding large claims. Others are excluding them completely and making separate provision.

A) Personal Lines - Reply 1

No.	Answer
1.	If the data is available, then large claims would typically be separated and treated separately.
2.	This would depend heavily on our clients' definition of a large claim, which might be similar to the excess point on their outwards XL reinsurance programme, or may be a specified figure, e.g. £250,000.
3.	Again this would vary from client to client, although typically all large claims would be subject to an individual case estimate, particularly for bodily injury claims.
4.	For IBNER reserves on known large losses:- we would analyse the development of the paid and incurred amounts from the date of loss in projecting the ultimate position. For IBNR large losses:- we would separately analyse the frequency and severity of large losses, adjusting for changes in volumes of business written in analysing frequency, as long as sufficiently credible volumes of data were available to us. If no credible data were available, we would make an implicit allowance for large claims through the selected initial expected ultimate loss ratio in conjunction with the use of Bornhuetter-Ferguson methods.
5.	For known claims, case reserves incorporate inflation allowances to the expected date of settlement. For IBNR claims, the selected average severities will have reflected historical rates of inflation insofar as these have been estimated using chain ladder techniques, as well as inflation adjustments in order to convert historical average severities into amounts which are applicable to current business.
6.	Where sufficient data is available, we would allow for the reinsurance programme explicitly. This would be achieved by applying projected individual losses and the projected non-large loss developments to the reinsurance programme in place. In many instances, this is achieved by our clients' own reinsurance staff who push projected losses through their Companies' reinsurance programmes. This is particularly important in order that areas of reinsurance exhaustion may be identified and specifically allowed for.
7.	On the basis of our knowledge of the approach typically adopted by our clients the specimen answer would be appropriate, i.e. Provision is based on a proportion of outstanding (including IBNR) reinsurance recoveries. The

	proportion varies according to the security attached to the reinsurer.

A) Personal Lines - Reply 2

No.	Answer
1.	If the data is available, then large claims would typically be separated and treated separately.
2.	This would depend heavily on our clients' definition of a large claim, which might be similar to the excess point on their outwards XL reinsurance programme, or may be a specified figure, e.g. £250,000. Aggregations of specific loss types, e.g. subsidence, might also be treated in the same way.
3.	Again this would vary from client to client, although typically all large claims would be subject to an individual case estimate.
4.	For IBNER reserves on known large losses:- we would analyse the development of the paid and incurred amounts from the date of loss in projecting the ultimate position. For IBNR large losses:- we would separately analyse the frequency and severity of large losses, adjusting for changes in volumes of business written in analysing frequency, as long as sufficient credible data were available to us. If no credible data were available, we would make an implicit allowance for large claims through the selected initial expected ultimate loss ratio in conjunction with the use of Bornhuetter-Ferguson methods. For windstorm or flood losses, exposure based techniques might also be adopted.
5.	For known claims, case reserves incorporate inflation allowances to the expected date of settlement. For IBNR claims, the selected average severities will have reflected historical rates of inflation insofar as these have been estimated using chain ladder techniques, as well as inflation adjustments in order to convert historical average severities into amounts which are applicable to current business.
6.	Where sufficient data is available, we would allow for the reinsurance programme explicitly. This would be achieved by applying projected individual losses and the projected non-large loss developments to the reinsurance programme in place. In many instances, this is achieved by our clients' own reinsurance staff who push projected losses through their Companies' reinsurance programmes. This is particularly important in order that areas of reinsurance exhaustion may be identified and specifically allowed for.

7.	On the basis of our knowledge of the approach typically adopted by our clients the specimen answer would be appropriate, i.e. Provision is based on a proportion of outstanding (including IBNR) reinsurance recoveries. The proportion varies according to the security attached to the reinsurer.

A) Personal Lines - Reply 3

No.	Answer
1.	Very exceptional large claims would be treated separately.
2.	Claims of such magnitude that they are significantly larger than any other claims over a period of several years in that class of business.
3.	Case estimates are used.
4.	Since only occur very exceptionally, IBNR reserve not required.
5.	Allowed for in the case estimates.
6.	It is assumed this question relates only to large claims. By applying the reinsurance programme to the individual case estimates.
7.	It is assumed this question relates only to large claims. Reinsurers requiring bad debt provisions are identified and proportion of outstanding reinsurance recoveries to be provided for as bad debts assessed. These proportions then applied to reinsurance recoveries for these reinsurers determined as in 6 above.

A) Personal Lines - Reply 4

No.	Answer
1.	Yes - excluded and treated separately, except for Motor XL where all individual claims below treaty XS are considered and modelled.
2.	No set definition. Any claim that makes up a significant percentage of the aggregate claims for any year may be reviewed separately.
3.	Claims manager's view is extremely important together with an analysis of remaining exposure and interaction of outwards reinsurance.
4.	IBNR large claims normally allowed for by selection of initial loss ratios in the B-F method allowing for remaining unearned exposure, except Motor where IBNR claims are considered from claims size distributions and associated probabilities.
5.	Motor XL - explicit restatement of all claims by treaty using inflation index. Other classes implicit in selected methods.
6.	Paid and outstanding reinsurance factual. IBNR recoveries by analysis of net/gross ratios and their development patterns. Analysis of claim size across years to measure any impact of changing outwards retention. Motor XL uses explicit model of reinsurance program and individual IBNR claims modelled through.
7.	No explicit analysis. Not a significant issue in aggregates at present.

A) Personal Lines - Reply 5

No	Answer
1	On the whole, no Recently we have begun to look at large claims and non-large claims separately for Private and Commercial Motor and Employers' Liability The results of this analysis are then used in projecting all claims together Anything exceptionally large (i e over £500k) is separated out for any class
2	A large claim is one where the incurred cost of the claim has at some point in its lifetime gone above x As stated above x = £500k is used In more detailed work (i e Private Motor etc) x = £100k
3	Case estimates are used for all classes
4	IBNR reserves are calculated for all claims together
5	Large claims are not reserved for separately, except where detailed above However, within total claim reserves inflation is allowed for in notified claim costs implicitly (i e whatever inflation has occurred in the past is projected forward) For IBNR reserves an explicit allowance for future inflation is made
6	Our analysis is done net of reinsurance
7	Reinsurance is generally purchased from reinsures with a high security The level of provision is low and relates to defaults that have occurred or are likely If appropriate the effect of irrecoverable reinsurance on IBNR or IBNER that will flow from defaults is identified and provided for

A) Personal Lines - Reply 6

No.	Answer
1.	Large claims are only identified for Motor Business. The excess amounts over an indexed threshold are measured separately.
2.	Index for 1985 is £100,000. Increased each year in line with average earnings index.
3.	Case estimation is used plus an amount or amounts in respect of further developments or potential extras such as Ogden.
4.	a) Frequency: obtained from industry data. b) Severity: average size of large claims exceeding thresholds are related to threshold by factor which is fixed. As thresholds move with the Average Earnings Index, so the average large claims size is indexed as well.
5.	For notified claims it is allowed for within the case estimates. For IBNR claims it is allowed for within the chosen severity.
6.	Reinsurance is at too high a level to have any impact.
7.	Not applicable in view of the answer to number 6.

A) Personal Lines - Reply 7

No.	Answer
1.	Where large claims data is available, large claims are removed from the claim triangulations and projected separately.
2.	The large claim threshold varies depending on the size of the account, the frequency of large claims and the data available. The threshold is typically £50,000, £100,000 or £250,000 for the 1997 accident year appropriately deflated for earlier years.
3.	The projected future payments would normally be based on the current case estimates adjusted to reflect any consistent historic patterns of redundancies or deficiencies in case estimates. The effect on the liabilities of using Ogden tables with an interest rate based on the net returns on an index linked gilt would also be considered (where appropriate).
4.	Separate analyses of the frequency and severity of large claims would be undertaken. The frequency analysis would examine the patterns of large claim reporting and of claims dropping below the large claim threshold. The analyses would be adjusted to allow for changes in the mix or size of the exposures. The severity analysis considers how claim size varies by year of reporting and adjusts for any trends apparent in the historic data. Allowance would be made for claims inflation and the effect of Ogden would be considered.
5.	For notified claims, inflation is normally allowed for in the case estimates and the analysis of historic deficiencies or redundancies would allow for any over or under allowance for inflation. Inflation is explicitly considered in the IBNR severity analysis.
6.	The effect of reinsurance is calculated by applying the results of the projections of the frequency and severity of large claims to the reinsurance programme.
7.	The suggested bad debt provision would be calculated as a percentage of the outstanding and IBNR recoveries. The bad debt percentage varies by security grade and by the duration until the recovery is expected to be made.

A) Personal Lines - Reply 8

No.	Answer
1.	Household - Large claims are projected separately Motor - No but bodily injury claims are modelled separately
2.	Household - Paid plus handler's estimates exceeds £25,000 at the valuation date.
3.	Household - Case estimates are used Motor - for bodily injury drift is added
4.	Household - IBNR is calculated for small claims with a % of the liability added on for large claims. The percentage varies by claim type.
5.	Household - notified outstanding - no allowance. For IBNR we allow a set percentage for IBNR inflation. For motor bodily injury we allow a drift margin for the inflation.
6.	On a case by case basis.
7.	Provision is a proportion of outstanding recoveries. Proportion applied varies by reinsurer depending upon security of reinsurer.

B) Commercial Lines - Reply 9

No.	Answer
1.	Where large claims data is available, large claims are removed from the claim triangulations and projected separately.
2.	The large claim threshold varies depending on the size of the account, the frequency of large claims and the data available. The threshold is typically £50,000, £100,000 or £250,000 for the 1997 accident year appropriately deflated for earlier years.
3.	The projected future payments would normally be based on the current case estimates adjusted to reflect any consistent historic patterns of redundancies or deficiencies in case estimates. The effect on the liabilities of using Ogden tables with an interest rate based on the net returns on an index linked gilt would also be considered (where appropriate).
4.	Separate analyses of the frequency and severity of large claims would be undertaken. The frequency analysis would examine the patterns of large claim reporting and of claims dropping below the large claim threshold. The analyses would be adjusted to allow for changes in the mix or size of the exposures. The severity analysis considers how claim size varies by year of reporting and adjusts for any trends apparent in the historic data. Allowance would be made for claims inflation and the effect of Ogden would be considered.
5.	For notified claims, inflation is normally allowed for in the case estimates and the analysis of historic deficiencies or redundancies would allow for any over or under allowance for inflation. Inflation is explicitly considered in the IBNR severity analysis.
6.	The effect of reinsurance is calculated by applying the results of the projections of the frequency and severity of large claims to the reinsurance programme.
7.	The suggested bad debt provision would be calculated as a percentage of the outstanding and IBNR recoveries. The bad debt percentage varies by security grade and by the duration until the recovery is expected to be made.

B) Commercial Lines - Reply 10

No.	Answer
1.	On the whole, no. Recently we have begun to look at large claims and non-large claims separately for Private and Commercial Motor and Employers' Liability. The results of this analysis are then used in projecting all claims together. Anything exceptionally large (i.e. over £500k) is separated out for any class.
2.	A large claim is one where the incurred cost of the claim has at some point in its lifetime gone above x. As stated above, x = £500k is used. In more detailed work (i.e. Private Motor etc.) x = £100k.
3.	Case estimates are used for all classes.
4.	IBNR reserves are calculated for all claims together.
5.	Large claims are not reserved for separately, except where detailed above. However, within total claim reserves inflation is allowed for in notified claim costs implicitly (i.e. whatever inflation has occurred in the past is projected forward). For IBNR reserves an explicit allowance for future inflation is made.
6.	Our analysis is done net of reinsurance.
7.	Reinsurance is generally purchased from reinsures with a high security. The level of provision is low and relates to defaults that have occurred or are likely. If appropriate the effect of irrecoverable reinsurance on IBNR or IBNER that will flow from defaults is identified and provided for.

B) Commercial Lines - Reply 11

No.	Answer
1.	If the data is available, then large claims would typically be separated and treated separately.
2.	This would depend heavily on our clients' definition of a large claim, which might be similar to the excess point on their outwards XL reinsurance programme, outwards surplus treaties or may be a specified figure, e.g. £250,000.
3.	The cost of all large claims would, typically, be determined using loss adjusters case estimates.
4.	For IBNER reserves on known large losses:- we would analyse the development of the paid and incurred amounts from the date of loss in projecting the ultimate position (see below). For IBNR large losses:- we would separately analyse the frequency and severity of large losses, adjusting for changes in volumes of business written in analysing frequency, as long as sufficient credible data were available to us. If no credible data were available, we would make an implicit allowance for large claims through the selected initial expected ultimate loss ratio in conjunction with the use of Bornhuetter-Ferguson methods. However, given the very short development tail and typically conservative loss adjusters' case estimates for commercial fire or business interruption claims, explicit allowances for IBNR large losses may not necessarily by made.
5.	For known claims, case reserves incorporate inflation allowances to the expected date of settlement. For IBNR claims, the selected average severities will have reflected historical rates of inflation insofar as these have been estimated using chain ladder techniques, as well as inflation adjustments in order to convert historical average severities into amounts which are applicable to current business (specific allowances for IBNR large claims are not, however, always made for such business).
6.	Where sufficient data is available, we would allow for the reinsurance programme explicitly. This would be achieved by applying projected individual losses and the projected non-large loss developments to the reinsurance programme in place. In many instances, this is achieved by our clients' own reinsurance staff who push projected losses through their Companies' reinsurance programmes. This is particularly important in order that areas of reinsurance exhaustion may be identified and specifically allowed for.

7.	On the basis of our knowledge of the approach typically adopted by our clients the specimen answer would be appropriate, i.e. Provision is based on a proportion of outstanding (including IBNR) reinsurance recoveries. The proportion varies according to the security attached to the reinsurer.

B) Commercial Lines - Reply 12

No.	Answer
1.	If the data is available, then large claims would typically be separated and treated separately.
2.	This would depend heavily on our clients' definition of a large claim, which might be similar to the excess point on their outwards XL reinsurance programme, or may be a specified figure, e.g. £250,000.
3.	Again this would vary from client to client, although typically all large claims would be subject to an individual case estimate, particularly for bodily injury claims.
4.	For IBNER reserves on known large losses:- we would typically make an implicit allowance for future large claims through the selected initial expected ultimate loss ratio in conjunction with the use of Bornhuetter-Ferguson methods and the use of other standard actuarial projection techniques. Where available, we would analyse the development of the paid and incurred amounts from the date of loss in projecting the ultimate position of each separately identified large loss. Where available, we would separately analyse the frequency and severity of large losses, adjusting for changes in the volumes of business written in analysing frequency, in order to establish reserves for IBNR large claims, subject to credible data being available to us.
5.	For known claims, case reserves incorporate inflation allowances to the expected date of settlement. For IBNR claims, the selected average severities will have reflected historical rates of inflation insofar as these have been estimated using chain ladder techniques, as well as inflation adjustments in order to convert historical average severities into amounts which are applicable to current business.
6.	Where sufficient data is available, we would allow for the reinsurance programme explicitly. This would be achieved by applying projected individual losses and the projected non-large loss developments to the reinsurance programme in place. In many instances, this is achieved by our clients' own reinsurance staff who push projected losses through their Companies' reinsurance programmes. This is particularly important in order that areas of reinsurance exhaustion may be identified and specifically allowed for.
7.	On the basis of our knowledge of the approach typically adopted by our

clients the specimen answer would be appropriate, i.e. Provision is based on a proportion of outstanding (including IBNR) reinsurance recoveries. The proportion varies according to the security attached to the reinsurer.

B) Commercial Lines - Reply 13

No.	Answer
1.	Very exceptional large claims would be treated separately.
2.	Claims of such magnitude that they are significantly larger than any other claims over a period of several years in that class of business.
3.	Case estimates are used.
4.	Since only occur very exceptionally, IBNR reserve not required.
5.	Allowed for in the case estimates.
6.	It is assumed this question relates only to large claims. By applying the reinsurance programme to the individual case estimates.
7.	It is assumed this question relates only to large claims. Reinsurers requiring bad debt provisions are identified and proportion of outstanding reinsurance recoveries to be provided for as bad debts assessed. These proportions then applied to reinsurance recoveries for these reinsurers determined as in 6 above.

B) Commercial Lines - Reply 14

No.	Answer
1.	Generally large claims are separated and projected, the only exception being small classes of business. Large claims are not separated for MIG or creditor business.
2.	Any claim for which paid plus handler's estimates exceeds £25,000 at the valuation date.
3.	For prior year's of account, outstanding equals claim handler's estimate plus a margin to allow for inflation to settlement. For current year of account, outstanding equals projected incurred less IBNR less paid to date. Projected incurred is found from triangulation of paid or incurred.
4.	IBNR numbers determined from triangulation of reported claims. IBNR average cost determined from trends in past average costs and adjusted for relationship between early and late reported claims.
5.	Notified claims - drift margin is added to case estimate. IBNR - explicit assumption in chosen severity.
6.	By projecting triangles of reinsurance paid plus case estimates and applying to the gross data.
7.	Provision is a proportion of outstanding recoveries. Proportion applied varies by reinsurer depending upon security of reinsurer.

C) London Market business - Reply 15

No.	Answer
1.	If the data is available, then large claims would typically be separated and treated separately.
2.	This would depend heavily on our clients' definition of a large claim, which might be similar to the excess point on their outwards XL reinsurance programme, or may be a specified figure, e.g. £250,000. However, many more losses may be coded as large losses if they are large losses to the market as a whole (e.g. per Lloyd's cat codes).
3.	Again this would vary from client to client, although typically all large claims or aggregations of claims from one event would be subject to individual case estimates. Many of the major losses affecting the market are also assessed centrally, with market estimates of the ultimate cost of such losses being made readily available.
4.	For IBNER reserves on known large losses and IBNR large claims reserves:- For the most recent UW years, we would typically make an implicit allowance for IBNR large claims through our selected initially expected ultimate loss ratios in conjunction with the use of Bornhuetter-Ferguson methods. For IBNER reserves on known large losses, other standard actuarial projection techniques, including exposure-based techniques, would be considered.
5.	For known claims, case reserves incorporate inflation allowances to the expected date of settlement.
6.	Where sufficient data is available, we would allow for the reinsurance programme explicitly. This would be achieved by applying projected individual losses and the projected non-large loss developments to the reinsurance programme in place. In many instances, this is achieved by our clients' own reinsurance staff who push projected losses through their Companies' reinsurance programmes. This is particularly important in order that areas of reinsurance exhaustion may be identified and specifically allowed for.
7.	On the basis of our knowledge of the approach typically adopted by our clients the specimen answer would be appropriate, i.e. Provision is based on a proportion of outstanding (including IBNR) reinsurance recoveries. The proportion varies according to the security attached to the reinsurer.

C) London Market business - Reply 16

No.	Answer
1.	Large spiral claims are projected separately.
2.	Claims with incurred to date losses of $10M approximately.
3.	Underwriters projections are used unless examination of development shows higher figures are appropriate in which case curve fitting techniques are employed.
4.	IBNR reserve not required as identification of further large claims has the effect of reducing overall net reserves as required.
5.	Not appropriate/possible to separately consider.
6.	It is assumed this question relates only to large claims. By applying the reinsurance programme to the projected individual projected claim costs.
7.	It is assumed this question relates only to large claims. Reinsurers requiring bad debt provisions are identified and proportion of outstanding reinsurance recoveries to be provided for as bad debts assessed. These proportions then applied to reinsurance recoveries for these reinsurers determined as in 6 above.

C) London Market - Reply 17

No.	Answer
1.	Varies greatly depending on data available and the number and size of large claims affecting the class. Often large claims are left in the main triangulation but the projections are adjusted to reflect the past and future impacts of large claims.
2.	Varies depending on the size of the account, the significance of large claims to that account and the impact of the reinsurance programme.
3.	Will depend on the circumstances of the claim such as the scope for future deterioration (or improvement) which will be affected by the precise lines written and the nature of the claim. Other exposures which may be affected would also be considered.
4.	Method used will depend on the class of business and the reinsurance protections available (extensive reinsurance may make the projection of large IBNR claims largely irrelevant). If impact is significant, a separate frequency and severity analysis would be undertaken. These analyses take into account changes in the line structure of the account. For example, if an insurer wrote a maximum line of £1 million until 1996 and started to write significant volumes of lines above £1 million in 1997 the large claim frequency and severity would change. In practice this "analysis" is often very rough and ready due to limitations on the data available.
5.	For notified claims, inflation is included in the case estimates. For IBNR claims the classes severity would include an allowance for inflation.
6.	Any large claim adjustments made to the gross projections would be reflected in the net projections by considering the effect of the projected gross large claims on the reinsurance program.
7.	The suggested bad debt provision would be calculated as a percentage of the outstanding and IBNR recoveries. The bad debt percentage varies by security grade and by the duration until the recovery is expected to be made.

D) General replies - Reply 18

No.	Answer
1.	Normally large claims are excluded and reserved separately. However, this depends on the quality of the client data. Say 10-15 large claims analysed separately in an average reserving project. Catastrophe claims, e.g. Hugo, 87J always excluded. APH claims analysed separately where sufficient data is available. The treatment of large claims does not automatically vary by class of business. Where the large claim significantly affects the reserving methodology it will be excluded and a separate allowance made.
2.	No single definition. Depends on data from client. All claims reserved separately where large claim seems to be distorting development data. If recent data on large claim is available, e.g. end January data for 31/12 review, often recent data is used and claim reserved separately.
3.	Normally the case estimates are used.
4.	Normally case estimates used for large claims, i.e. assume zero IBNR historic over/under reserving of large claims analysed. For Cats the development of the cats are analysed and the inward exposure analysed. For Cats graphical, exposure, benchmark and recent development methods are used.
5.	Either allowed for in case estimate or, if using inflation adjusted reserving methods, inflated using the assumed inflation index.
6.	The company's reinsurance programme is applied directly to the gross projection of the large claim.
7.	

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D) General replies - Reply 19

No.	Answer
1.	For personal motor large claims are included in the reserving data. However large claims are deducted from the triangulated data and projected separately to test the sensitivity of the results. For all other classes large claims are not excluded from the other claims.
2.	For Personal Motor, £150,000 in the 1996 accident year de-indexed for other accident years using a notional large claims inflation index.
3.	For all classes case estimation is used. The outstanding claims cost is the estimated ultimate claim amount less any payments made to date.
4.	For personal motor frequency severity analysis is used as follows: (a) Frequency - selected by examining trends of large claims over time and allowing for changes in mix of business (b) Severity - selected by examining trends in past large claims and adjusting for trends and the relationship between early and late reported claims.
5.	For personal motor notified claims, it is allowed for within the case estimates. For personal motor IBNR claims, it is allowed for within the chosen severity based on a notional accident year inflation.
6.	The results of the frequency severity analysis for personal motor can be used applying the details of the reinsurance programme to this and the total claim projection data. For the IBNR reserve, where individual claim amounts are not immediately available, claims are derived by randomly selecting claims from standard claim frequency and claim amount distributions.
7.	Provision is based on a proportion of outstanding reinsurance recoveries. The proportion varies according to the security attached to the reinsurer.

D) General replies - Reply 20

No.	Answer
1.	For household and PMI business the large claims are not treated separately. For most other classes large claims are identified and treated separately.
2.	Different thresholds apply for different product lines and within different operating divisions. Claims above the thresholds are gathered into databases for further analysis.
3.	In general the outstanding case estimate is used as the reserve. Where the data indicates the potential for adverse development, for example legal expenses and some liability, a separate immaturity reserve is calculated from past trends.
4.	Frequency of large claims is estimated from past trends. Average costs are derived from trends in past costs after correcting costs to present day values. IBNR is calculated from frequency, average cost and assumed future inflation.
5.	Generally, in the case estimate value unless there is sufficient data to project past experience and arrive at a different rate. See 4 for IBNR.
6.	Where date is available, the reserves are calculated separately at the gross and net level. Where reinsurance is small the net reserves are calculated and the gross derived by grossing up.
7.	I do not have direct experience of the commercial business where this is more relevant. We only have a few reinsurance contracts on the general side, where the security of reinsurers is not in doubt. Known bad debts are provided for in full.