# THE OPERATIONAL ASPECTS OF OUTWARDS REINSURANCE TREATIES

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Abstract

This paper discusses several operational considerations of outwards reinsurance treaties necessary to insure that the treaties are both functioning as intended, and properly reflected in the ceding companies financial statements. Commonly used treaty provisions and their impact on financial statements are discussed. The author has seen each of these provisions mishandled and is deeply indebted to many unnamed companies for first calling his attention to the fact that a seeming innocuous treaty clause, can sometimes create a significant distortion in financial statements.

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Proper reinsurance practices are a prerequisite for the sound operation of most insurance companies. Reinsurance practices include the design, negotiation and purchase of a reinsurance program suitable to the needs of the company, as well as certain operational matters necessary to insure that the program both actually functions as intended, and is correctly reflected in the company's financial statements.

This paper deals with the operational aspects of outwards reinsurance treaties, that is, treaties protecting the ceding company. Inwards treaties, that is, treaties assumed by the company have different considerations.

While direct policies tend to be somewhat standardized, reinsurance agreements tend to be custom drawn, reflecting a wide diversity of thought and needs. For this reason general statements about treaties cannot apply to all treaties. The examples used in this paper, while reflective of customary usage, will not apply in all cases. Treaties may apply on a written or earned basis. The unmodified word premium should be understood in this context.

## Identification of Ceded Premiums

A reinsurance treaty can apply to all business that the ceding company writes, to only a particular line or lines of business, only to business written by a certain department of the ceding company, only

to business produced by a given producer, or to any subset or combination of these. A particular policy may be, and frequently is, ceded to more than one treaty. Ceded premium may be based on either written or earned premium. Proper identification of ceded premiums is needed so that the reinsurer receives the right amount of premium.

When a policy is ceded to more than one treaty, the treaties generally specify the order of application. Typically, the order of application of the premium follows that of the losses. Consider a casualty book of business protected both by a quota share treaty and by an excess of loss treaty; 20% quota share and a $100,000 excess of $150,000. If there is a loss before reinsurance of $250,000, how do the treaties respond? If the quota share applies first then $50,000 (20% of $250,000) is ceded to the quota share. Of the remaining $200,000, $150,000 is retained, and $50,000 is ceded to the excess.

If the excess applies first, $100,000 (excess of $150,000) is ceded to the excess. Of the remaining $150,000, 20% or $30,000 is ceded to the quota share, and $120,000 is retained.

The amount of loss ceded to each treaty and retained by the insurer is very much dependent upon the order of precedence. It is logical that the premium should be distributed in the same way. The ceded premium to a quota share treaty is generally a percent of the policy premium, 20% in the above example. The price of excess of loss protection is also typically expressed as a percent of premium.

The general approach to premium is that the percent or rate applies to premium net to other reinsurance which inures to the benefit of the treaty. Thus, in the above example, if the rate for the excess was 10%, a $1,000 premium would be ceded as follows: When the quota share applies first, 20% of $1,000 is ceded to the quota share. The excess rate of 10% would apply to the remaining $800, and $80 would be ceded to the excess. When the excess applies first, 10% of the $1,000 is ceded to the excess, and 20% of the remaining $900 is ceded to the quota share. In this manner, premium is ceded in the same manner as losses will be.

For property books of business, surplus share and catastrophe reinsurance are a common combination presenting the same problem of precedence. There is no standard order of application of treaties. Facultative protection must also be considered, it too may apply to the net exposure of the insurer, or it may inure to the benefit of the treaties.

In developing ceded premium it is vital to properly reflect the correct order of precedence.

It is important to distinguish between subject premium and ceded premium. Subject premium is the premium of all policies to which the treaty applies, minus the premium ceded to treaties or facultative placements inuring to the benefit of the treaty. This may be written or earned premium depending upon treaty provisions. Ceded premium is the amount of premium actually given to the reinsurer. For example a quota share treaty may reinsure 20% of business classified by the

ceding company as long haul trucking physical damage insurance. The premium of all policies covering long haul trucking physical damage is the subject premium of this treaty, 20% of this premium is the ceded premium. An excess of loss treaty might reinsure losses in excess of $250,000 for all losses arising from policies reported as General Liability on the ceding company's Annual Statement. The reinsurer's charge for this protection is 5% of subject premium. All General Liability premium is the subject premium, and 5% of that amount is the ceded premium.

Treaties generally provide coverage on either a losses occurring basis, or a risk attaching basis. The losses occurring basis provides coverage for losses occurring during the treaty term regardless of when the underlying policy was written. The risk attaching basis covers only policies written during the term of treaty. This may be done in two ways: only for losses occurring during the treaty term, the "cut-off" basis, or for losses occurring during the term of the underlying policies, the "run-off" basis.

The basis of coverage aligns naturally with whether the ceded premium is based upon written or earned premium. Losses occurring usually corresponds to a cession based upon earned premium. Risk attaching on a "cut-off" basis is typically ceded on a written basis excluding the unearned premium reserve. On a "run-off" basis the cession is generally on a written basis with the unearned premium reserve.

In addition to the obvious problems in deriving the proper premium to be paid the reinsurers, the distinction between written and earned can create difficulties with some financial ratios.

Consider, for example, an excess of loss treaty covering all losses occurring in 1985 regardless of when the underlying policy was written. This treaty would typically be rated as a percent of earned premium. During 1985, policies are written which will not expire until 1986. Losses occurring in 1986 are not covered by the treaty. Should the year end 1985 unearned premium reserve be carried gross or net of the treaty? Does the answer change if at year end 1985 it is known that the treaty will be renewed? This situation can be made more complex if the treaty term extends to April, 1986. Certainly, that portion of the unearned premium reserve corresponding to losses projected to occur between January 1 and March 31, 1986 should be ceded to the treaty. At year end the renewal terms are at best uncertain. How should the remainder of the unearned premium reserve be carried?

Since earned premium must be written premium plus the change in the unearned premium reserve, the method of computing net unearned will define net written. Net earned premium, and thus the income statement is unaffected. Financial ratios involving net written premium can be distorted.

## Recording Minimum and Deposit Premium

When a treaty is written on a minimum and deposit basis the ceding company will for example, "pay the reinsurer a premium of 10% of the subject premium of this contract, subject to a minimum and deposit premium of $1,000,000 payable quarterly in advance". This treaty

provision means that on the first day of each quarter the ceding company is to pay the reinsurer $250,000. After the end of the year the total subject premium is multiplied by 10%, and if the result is greater than $1,000,000 the difference is remitted to the reinsurer. If the total is less than $1,000,000, the ceded premium remains at $1,000,000 with no refund of premium.

The minimum and deposit premium, or M&D, should be estimated to approximate the final premium. As competitive tool, reinsurers have been known to reduce the M&D to the cash flow advantage of the ceding company. In any event, actual premium writings can be very different, either more or less, than projections. When this occurs, distortions are frequently introduced in the financial statement by improper booking of the ceded M&D premium.

Companies will often record either the M&D or the percentage rate as the ceded premium without regard to the other. In the above example, an annual premium of $10,000,000 or $2,500,000 per quarter is contemplated. This, at 10% will produce $1,000,000 ceded premium. If the company is actually writing $5,000,000 per quarter, and is recording only the M&D as ceded premium, its net premium is overstated. A company's net premium will also be overstated if it were only writing $2,000,000 per quarter, and recording 10% of $200,000 as ceded premium.

This over-statement of net premium, both written and earned, will appear in each of the company's quarterly financial statements. At the end of the year the correct ceded premium is generally computed.

Although for large multi-line companies this distortion is usually negligible, in some instances, for the smaller company, the effect can be large enough to cause unpleasant year end surprises.

The distortion can be avoided by calculating ceded premium as the higher of the year to date M&D and actual premium. Table 1 demonstrates this calculation.

Table 1

Calculation of Recorded Ceded Premium

(000) Omitted

| | Cumulative | | | |
|---|---|---|---|---|
| Quarter | Written Premium | Computed Ceded Premium @ 10% | Minimum & Deposit Premium | Recorded Ceded Premium |
| 1 | $ 2,000 | $ 200 | $ 250 | $ 250 |
| 2 | 5,000 | 500 | 500 | 500 |
| 3 | 9,000 | 900 | 750 | 900 |
| 4 | 11,000 | 1,100 | 1,000 | 1,100 |

It should be noted in Table 1, that the company only pays $250 per quarter to the reinsurer. The excess premium of $150 in the third quarter is kept as a reserve and not paid until the year end settlement. Ceded premium does not equate to premium paid, but rather to premium that has been or will be paid.

## Identification of Ceded Losses

Losses are typically ceded to a reinsurance treaty in the same manner as premium. As discussed above, when multiple treaties cover the same

loss, an order of precedence is generally specified in the treaties. There are several situations where the identification of ceded losses is less than obvious.

Excess of loss treaties can include a provision, known as the aggregate extension clause, stating that "this reinsurance will respond in the aggregate whenever the underlying policy is written in the aggregate." This provision means that when a policy is written with an aggregate limit, such as Products Liability, the excess of loss reinsurance covers when all losses under the policy exceed the retention, rather than when the retention is exceeded by a single loss. A procedure that determines ceded loss based upon claims exceeding the company's retention will not identify these aggregate claims. Many of the new policy forms to be introduced during 1986, such as the ISO Commercial General Liability policy, provide an aggregate limit on most classes of third party liability other than automobile. If the aggregate extension clause remains in reinsurance contracts, the problem of identifying aggregate losses increases.

Catastrophe treaties provide another problem in identification. Ceding loss to a catastrophe treaty involves two distinct steps: accumulating all loss arising from an event, and ascertaining if the event is a catastrophe as defined in the treaty.

Many companies determine catastrophe losses solely by relying upon source level coding by the claims examiner. This process will almost always overlook some claims that should properly be ceded. In

addition it does not allow for the occasional "mini-catastrophe", that while too small to attract attention, is just big enough to pierce the company's retention.

Source level coding should be supplemented by periodic examination of losses by date, cause and location. This can be used not only to identify losses from an event, but to ascertain if the event is a catastrophe as defined by the treaty.

Catastrophe treaties generally define a covered event in terms of lines of business and dollar amount. That is, coverage is provided when an event causes losses for the included lines of business in excess of a predetermined retention. Some events are frequently defined by fixed time periods. Weather related events are usually defined as "all losses from an atmospheric disturbance occurring during a continuous 72 hour period." Civil disorder is sometimes defined in a similar fashion. The ceding company can select the period to be covered. It is anticipated that the period will be selected in the most advantageous manner to the ceding company. Date of loss analysis is necessary to do this.

Excess of loss contracts can cover losses arising from a single event regardless of the number of risks involved. Broadly written excesses, known as clash covers, will cover many if not all lines of business as well. Thus, a trucking accident involving automobile liability and Workers Compensation for the driver is subject to single retention. The identification of all such losses is a difficult process. Numerous policies written in different areas by different departments

of the company may be involved. It is not hard to imagine a hotel fire with injuries creating losses under the hotel's Property policy, Workers Compensation, third party liability for the injured guests, Architects and Engineers Professional Liability, Products Liability, and even Insurance Agents Errors and Omissions if the coverages weren't placed correctly. All of these, if a single insurer were unfortunate enough to have written all the policies, would be covered by a broadly written clash excess.

Although the above example may appear far fetched, unusual aggregations of loss can and do occur. The author is not aware of a "perfect" system for accumulating these types of losses. Matching claims under various lines of business by date of loss can produce the correct answer, but it is generally prohibitively expensive for a company of size. It should be noted that the problem is most acute for a reinsurer in determining its retrocessions.

## Notice of Loss, Proof of Loss, and Bordereau

In addition to identifying ceded losses for financial purposes a company must report the loss to the reinsurer so that the reinsurer can reimburse the company. This reporting is done either on a individual claim basis or bordereau basis.

Bordereau reports are typically associated with proportional treaties. The total of all losses ceded to the reinsurer is reported, often with a list of the individual claims. Details of each claim are not provided.

Excess of loss contracts usually require individual reports of loss. A notice of loss setting forth details of the claim is to be sent at the time the company is first aware of a claim potentially exceeding its retention, or for certain specified injuries, such as death claims. Notices of loss form the basis of loss reserving for the reinsurer, and if properly executed, can be a useful source of loss reserving and pricing information at the ceding company level.

The notice of loss is related to outstanding losses. It does not cause the reinsurer to pay a claim. When a claim is paid, a proof of loss is sent to the reinsurer detailing the claim payment. It is the proof of loss that triggers the reimbursement of the claim.

It is axiomatic that reimbursement cannot take place until after a proof of loss is submitted. It is, therefore, surprising how many companies have procedures that do not submit a proof until after the claim is closed. The reinsurance is due when the loss is paid. A claim is often kept open for some time after the loss has been paid for the final adjuster's or attorney's bill. These items of allocated loss adjustment expense can follow the claim payment by many months. Proofs of loss can be easily amended for subsequent payments. The lost investment income to the ceding company will usually offset the added costs of multiple proofs of loss.

## Loss Sensitive Treaties

Reinsurance treaties are frequently written on a loss sensitive or retrospectively rated basis. Two types of loss sensitive plans are in

common use: sliding scale commission plans where the ceding commission paid to the company is altered in response to ceded losses, and true retrospectively rated plans where the ceded premium is modified by ceded losses.

Sliding scale commission plans are generally associated with proportional contracts. A typical provision would be: "the reinsurer agrees to pay the company a provisional commission of 30%, this commission will be reduced by one-half of one percentage point for every one percentage point that the reinsurers loss ratio exceeds 65%, subject to a minimum commission of 25%; and it will be increased by one-half of one percentage point for every one percentage point that the reinsurers loss ratio exceeds 65%, subject to a maximum commission of 35%." Sliding scale commission is frequently formulated as a profit commission, where the provisional commission can only be increased.

If a company has a 20% quota share treaty with this provision, and wrote $20,000,000 of premium, it cedes $4,000,000 (20% of $20,000,000), and receives a provisional commission of $1,200,000 (30% of $4,000,000). If the company's losses are $13,000,000 it will cede $2,600,000 (20% of $13,000,000). The reinsurer's loss ratio is 65% ($2,600,000/$4,000,000), and the final commission is equal to the provisional commission. No further adjustments are made. If, however, the losses are $13,200,000, ceded losses become $2,640,000. The reinsurer's loss ratio increases to 66%, and the ceding commission is reduced to 29.5%. The company previously received a ceding

commission of $1,200,000, the final commission is $1,180,000 (29.5% of $4,000,000). It owes the reinsurer $20,000. If the losses had been less than $13,000,000 the reverse would be true.

Thus, it can be seen that although the company ceded an additional $40,000, its net income is benefited by only $20,000. If the commission was a fixed percentage, the net income would have been affected by the same amount as ceded loss.

True retrospective rating is usually associated with excess of loss treaties. A typical provision would be: "the company will pay to the reinsurer a provisional premium based upon a provisional rate of 5% multiplied by subject premium. The provisional rate shall be adjusted annually based upon the current valuation of losses ceded to this treaty. The rate shall be losses ceded to this treaty, limited to $150,000 per loss, divided by subject premium, plus two percentage points for the reinsurers administration, subject to a minimum rate of 3% and a maximum rate of 9%."

If the treaty is to continue for several years, the rate may be based on the combined experience of several years or a separate rate may be established for each year.

A company with a $400,000 excess of $100,000 excess of loss treaty with this provision pays a provisional premium of $500,000 based upon a subject premium of $10,000,000. If the only large loss the company has is a $200,000 claim, then ceded losses are $50,000 and the rate would be $50,000/$10,000,000 or .5%, plus the 2% charge. This is

less than the minimum so the company would pay the minimum rate of 3%. Since it had already paid a provisional premium based on 5%, the company would receive a refund.

If, however, the company had four losses of $500,000 each, ceded losses would be $1,600,000. Of this $600,000 ($150,000 per claim) would enter the retrospective formula. The final rate would be 8% ($600,000/$10,000,000 or 6% plus the 2% charge). The company would owe the reinsurer an additional $300,000 (8% of $10,000,000 less the provisional premium of $500,000).

If losses in the $150,000 excess of $100,000 layer are less than 1% of subject premium, the company pays the minimum premium. If losses in the layer exceed 7% of subject premium the company pays the maximum premium. Within these limits, the company is effectively self insured. There can be cash flow differences between retrospective rating and self insurance in that retrospective rating is usually on an incurred loss basis, while reinsurance reimbursement is on a paid basis. Therefore, the reinsurer has the use of the funds rather than the company as would be the case with self insurance.

Retrospective rating provisions have the effect of converting losses into premium. Consider a simplified example of a $400,000 excess of $100,000 excess of loss treaty where reinsurance premium is equal to ceded losses plus 2% of subject premium.

A ceding company with $10,000,000 of subject premium should record an initial ceded premium of $200,000 (2% of $10,000,000). If the company

establishes a gross loss reserve of $250,000, it would record ceded outstanding loss of $150,000, and net loss reserve of $100,000. The company should then increase ceded premium by $150,000, thereby reducing net premium by that amount. The effect on net income is the same as that of a loss of $250,000 without reinsurance, however, $150,000 has been "moved" from loss to premium.

Similar distortions appear in the balance sheet. Loss reserves are carried net of reinsurance. When the additional premium is paid to the reinsurer, cash is reduced, and surplus is the same as it would have been without the reinsurance. Until the reinsurer is paid, a reserve for ceded reinsurance balances payable should be maintained.

The transfer of premium to loss inherent in loss sensitive reinsurance treaties creates difficulties in both the preparation and analysis of insurer financial statements. Loss reserves are carried net of reinsurance. The additional premium due the reinsurers as a result of those loss reserves should also be carried as a liability. This includes those additional premiums associated with IBNR.

The above example was simplified. In practice, most retrospectively rated excess of loss contracts include only losses in a particular layer in the retrospective premium formula. A $400,000 excess of $100,000 treaty may include only the first $150,000 of reinsured losses in the calculation. That is, only gross losses in the $150,000 excess of $100,000 are reflected in that retrospective formula.

IBNR calculations tend to concentrate on net IBNR, and sometimes gross IBNR. As can be seen, an IBNR between these numbers is required to properly reflect loss sensitive reinsurance treaties. This is a very difficult number for many companies to calculate.

Retrospectively rated reinsurance treaties create two distinct problems in the analysis of insurer financial statements. Losses are substantiated by several supporting schedules in the statutory Annual Statement. Ceded premium is not as well supported. Balances payable to reinsurers is not supported at all, it includes all ceded premium not yet paid to reinsurers, from fixed as well as retrospectively rated treaties. As a result, if a company ceded losses and failed to recognized the resultant ceded premium its net income and surplus would be overstated. This overstatement would be very difficult to detect. It is the author's belief that this situation is relatively common as regards the retrospective premium associated with IBNR.

The Ceded Reinsurance Report of the General Interrogatories attempts to respond to this concern. The amount of additional premium due but unaccrued on all loss sensitive treaties is estimated and reported in the interrogatory. It is the author's opinion that the difficulties inherent in estimating the amounts associated with IBNR tend to make this number suspect. Further, the complexity of many retrospectively rated reinsurance treaties is such that some companies do not respond to the interrogatories correctly.

A serious impact of the "transfer" of loss to premium is the dampening of the apparent loss development in Schedules O and P. This is

particularly true for longer tail Schedule P lines when subject to a low level retention. A significant portion of the development for these lines occurs in the ceded layer. Since Schedule P is on a net basis, this development does not appear on Schedule P. Rather the development manifests itself as an increase in ceded premium. Increases in ceded premium can be attributed to causes other than retrospectively rated premium development (reinsurance rate increases for example), thus the "true" loss development of the company is obscured. Generally, the development appearing in Schedules O and P will tend to be understated as the higher development is transferred to premium.

The author is unaware of any reasonable procedures that can be instituted to overcome these difficulties. The effects of loss sensitive treaties must be taken into account in any analysis of insurer financial statements, particularly for smaller companies where the impact can be proportionally greater.

Miscellaneous Items

Excess of loss treaties are sometimes written on a deductible basis. The deductible is generally expressed as a percent of subject premium. That is, the treaty will cover for example, $400,000 excess of $100,000, subject to a deductible of 5% of subject premium. If subject premium were $10,000,000, the company would pay the first $500,000 of losses in the $400,000 excess of $100,000 layer. This must be recognized in established ceded losses, particularly those dealing with IBNR. A change in deductible must be reflected in IBNR

calculations in a similar manner to a change in retention. Some treaties contain a maximum total payment for all claims which causes similar but usually less severe difficulties.

Marine and catastrophe treaties often have reinstatement provisions. These provisions are used when the treaty provides a maximum total amount of coverage. If the total is reduced or exhausted, it can be reinstated for an additional premium. The premium relates to the original premium of the treaty. The reinstatement premium may be fixed or it may be proportional to time and/or coverage. If it is proportional to coverage, a treaty providing $1,000,000 of total coverage for example, with $100,000 of ceded loss, would have reinstatement premium of 10% of the original premium; and when paid, the entire $1,000,000 limit is again available.

When the reinstatement premium is proportional to time, and nine months have elapsed on a one year treaty, the reinstatement premium is 25% of the original premium. The premium may be proportional to both time and coverage. The reinstatement may be either mandatory or at the ceding company's option. If it is mandatory, the reinstatement must be purchased and the appropriate ceded premiums should be reflected at the time of loss.