


**Reinsurance Risk Transfer  
Case Studies**

presented at the  
2010 Casualty Loss Reserve Seminar  
By Dale F. Ogden, ACAS, MAAA  
[www.USActuary.com](http://www.USActuary.com)

 Dale F. Ogden  
& Associates

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**Disclaimer**

The examples contained in this presentation may (or may not) be based on real contracts. Names have been omitted and numbers have been changed, perhaps significantly, to protect the innocent (and the guilty and the clueless).

Any opinions expressed herein are solely mine and do not represent those of the CAS, the AAA, or any other organization, employer, client, or state insurance regulator. Perhaps they do not even represent my opinions.

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& Associates

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**Evaluating Risk Transfer**

The evaluation of Risk Transfer depends upon accounting rules; as such, the determination of risk transfer will be made by accountants, often with the assistance of actuaries. An actuary may sometimes be asked to interpret accounting rules and opine on risk transfer. As such, the existence of risk transfer may vary between statutory and GAAP accounting. My presentation will focus primarily on statutory accounting. GAAP will vary only in certain special cases.

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& Associates

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## Evaluating Risk Transfer

### Statutory Accounting:

Guidance on Risk Transfer is contained in SSAP 62, *Property and Casualty Reinsurance*

### Generally Accepted Accounting Principles:

Guidance on Risk Transfer is contained in FAS 113, *Accounting and Reporting for Reinsurance of Short-Duration and Long-Duration Contracts*

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## Statutory versus GAAP

Slight differences in SSAP 62 & FAS 113 (may be a matter of focus or interpretation)

“A reinsurer shall not have assumed significant insurance risk under the reinsured contracts if the probability of a significant variation in *either the amount or timing of payments* by the reinsurer is remote. Implicit in this condition is the requirement that both the amount and timing of the reinsurer’s payments depend on and directly vary with the amount and timing of claims settled by the ceding entity.”

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## Retroactive Reinsurance

Special Accounting: Even if a reinsurance contract transfers risk, **SSAP 62** generally requires the special recognition (or deferral) of profits from Retroactive Reinsurance

Ceding Company: Loss & LAE reserves must be recorded Gross of Retroactive Reinsurance and in all schedules and exhibits.

Assuming Company: must exclude Retroactive Reinsurance from Loss & LAE reserves and in all schedules and exhibits.

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## Retroactive Reinsurance

Retroactive Reinsurance is shown as a Write-In on the Balance Sheets for both the ceding and assuming companies: recorded as a liability for the assuming company and a contra-liability for the ceding company.

Surplus gain from Retroactive Reinsurance shall not be classified as "Unassigned Funds" until amounts recovered exceeds consideration paid. Other limitations on Special Surplus Funds.

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## Disclosure Advice

### "Disclosure will set you free."

Whatever the situation, I believe it is always wise to disclose the existence of unusual reinsurance agreements in financial statements or any other type of report or communication.

As actuaries, when we write reserve Opinions or Risk Transfer Opinions, perhaps in conjunction with accountants, it might be wise if we also disclose, disclose, disclose, etc.

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## 1 – Quota Share

Terms & Conditions:

- One Year Contract
- 25% quota share
- 35% provisional ceding commission
- Ceding commission increases and decreases dollar for dollar by amount losses differ from 60% loss ratio
- Minimum commission 25%; Maximum 45%
- Commission evaluated (paid or collected) 21 months after inception; reevaluated every 12 months until all losses have been paid
- Expected Loss Ratio is 60%

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## 1 – Quota Share

### Scenario A:

- Contract of unlimited duration
- Unlimited Carry-forward of losses (future commissions will be reduced to pay back any “net losses” to the reinsurer (loss ratio greater than 70%; i.e., less than 5% “reinsurer’s margin”)
- Cancelable at anniversary date by either party

### Scenario B:

- Contract of three-year fixed duration
- Unlimited Carry-forward of “net losses” but only for three-year contract period, with annual reevaluations

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## 1 – Quota Share

### Questions to ponder:

- Does the Basic Quota Share contract with the sliding scale commission pass Risk Transfer?
- Does the unlimited duration under Scenario A cause the contract to fail Risk Transfer?
- Does the ability of the ceding company to cancel the contract mitigate lack of Risk Transfer?
- Does the three-year limitation in Scenario B fix the problem, if any, in Scenario A?
- Could a reinsurance contract of unlimited duration ever pass Risk Transfer?

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## 2 – Excess of Loss

First Layer of XS Coverage (expected annual “gross net” earned premium of \$20 million)

- \$300,000 excess \$200,000 per occurrence (unlimited)
- Ceded premium = ceded losses × 125% (the original language was more obscure) subject to a maximum of 30% of direct premiums
- Three-year contract (non-cancellable)
- Unlimited (beyond three years) carry-forward of any “losses” to reinsurer (i.e., ceded premium less than 125% of losses)
- Provisional ceded premium 15% GNEP (\$3 million)

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## 2 – Excess of Loss

### Second Layer of XS Coverage

- \$500,000 excess \$500,000 per occurrence (unlimited)
- Guaranteed Cost Ceded Premium = 10% GNEP (\$2 million)
- Second Layer Cannot be purchased without the first layer, so while the second layer is guaranteed cost, the built-in gains from the first layer could subsidize the second layer.
- Is there risk transfer? (there are no aggregate limits)
- How might we account for these treaties?

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## 2 – Excess of Loss

### Questions to ponder:

- Should we evaluate each of the two layers of excess coverage individually or combined for risk transfer?
- If Layer 1 by itself fails Risk Transfer and Layer 2 by itself passes Risk Transfer, should each layer be accounted for individually (bifurcation)?
- How is Risk Transfer affected by the requirement that, in order to purchase Layer 2, the ceding company must also purchase Layer 1?
- Does it matter if there are some different reinsurers that participate in Layers 1 and 2?

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## 3 – Excess of Loss

### Medical Malpractice Carrier (Mutual)

- \$500,000 excess \$500,000 per occurrence
- Guaranteed Premium equal to 25% of Gross Earned Premiums (which are expected to be ~\$10 million)
- Maximum Ceded Loss Ratio of 200% per year
- Expected Number of Paid Claims per Year = 15
- Expected Average Severity = \$350,000
- Excess Losses modeled with CV = 2.5, showing ~
  - 10% Probability of Loss of 5% × ceded premium
  - 5% Probability of Loss of 20% × ceded premium

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### 3 – Excess of Loss

#### Other Considerations

- Contract of 10-Year Duration, but cancellable after five years by either party
- Maximum 200% Loss Ratio per treaty year
- No carry forward of profits or losses
- Premium for each individual year of coverage may be adjustable in advance by agreement (with nothing about who resolves disagreements) after third year, but not be less than 20% of gross direct earned premiums

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### 3 – Excess of Loss

#### Questions to ponder:

- Is there a problem with a ten-year duration contract? a five-year duration contract?
- Assuming there are no other problems with the contract, would an excessive premium cause the contract to fail Risk Transfer? Should Risk Transfer requirements "protect" cedants from bad deals?
- Who judges a contract to be a "bad deal?"
- Would a reinsurer write a ten-year contract where it "...is reasonably possible that the reinsurer may realize a significant loss from the transaction."

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### 3 – Excess of Loss

- Consider a simple situation where there is a 10% chance of a 30% loss in each year (i.e., the ceded loss ratio for that year would be 130%) and a 90% chance of zero ceded claims.
- Would pass 10-10 rule for one year easily
- ERD for one year would be 3% (generally a pass)
- Yet, over a ten-year period, expected claims would be equal to 130% of one year's premium or 13% of the total ceded premiums for ten years.
- The probability of any net loss to the reinsurer over the ten year period is only .45%.

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## 4 – Aggregate Stop-Loss

Aggregate Excess Stop-Loss (language is complicated)

- Contract Inception 1/1/2008; duration one year (contract signed during June 2008)
- Covers book of property and casualty reinsurance
- 15% GNEP excess 75% loss ratio ( $75\% \times \text{GNEP}$ )
- Aggregate Limit: variable, maximum \$75 million, selected by ceding company by 4/1/2009 (ELR 75%)
- If GNEP < \$500 million, then maximum limit is 15% of GNEP, but no less than \$50 million
- Amount of Catastrophe Losses that can apply towards the deductible is limited to selected aggregate limit

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## 4 – Aggregate Stop-Loss

Aggregate Excess Stop-Loss (continued)

- If GNEP > \$550 million, then aggregate deductible increases by 1% for each \$10 million of premium in excess of \$550 million, but no greater than 80%
- If GNEP < \$450 million, then aggregate deductible can be no less than 75% of \$450 million
- Ceded Premium =  $\text{Limit} \div (1+i)^n$  where n = expected duration of payments and i is 50 basis points (0.5%) less than the yield (as of actual premium payment date) for treasury bonds with 10 year maturities
- T-Bond rate was ~2.7% on 4/1/09 (~4.0% 6/30/08)

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## 4 – Aggregate Stop-Loss

Aggregate Excess Stop-Loss (continued)

- No Retrospective Premiums; Includes Profit Sharing
- Ceded premium paid to Assuming Company, which invests the funds; accrues interest in the "Notional Account" at same rate as used in pricing.
- $\text{NA} = \text{Premiums} + \text{Accrued Interest} - \text{Paid Losses}$
- If money is left after all losses have been paid, then profit sharing is paid to ceding company.
- Contract may be commuted by ceding company at any time and receive the amount in the Notional Account, less \$1 million reinsurer's margin.

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## 4 – Aggregate Stop-Loss

### Questions to Ponder

- Is there any insurance risk transfer? Could different actuaries/accountants reach different conclusions?
- Is the contract merely an interest rate arbitrage for the assuming company?
- How many “Risk Transfer Red Flags” are apparent?
- Perhaps, “complicated terms and conditions” is yet another Risk Transfer Red Flag? (the actual contract was more convoluted)
- Is this just a fancy way to discount loss reserves at a below market interest rate?

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## 4 – Aggregate Stop-Loss

SSAP 62 states that “...Implicit in this condition is the requirement that both the amount and timing of the reinsurer’s payments depend on and directly vary with the amount and timing of claims settled by the ceding entity. Contractual provisions that delay timely reimbursement to the ceding entity prevent this condition from being met.”

The amount and timing of losses under this treaty do not vary directly with the amount and timing of payments; in fact, as losses increase, payments are further delayed, illustrating that, at least per statutory accounting, there is no insurance risk transfer.

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## 5 – Aggregate Stop-Loss

Yet another Aggregate Stop-Loss (simpler)

- Property & Casualty Primary Insurer (includes significant portion of workers compensation and various other liability coverages)
- 15% of GNEP excess of 60% GNEP
- Guaranteed Cost of 7.5% of GNEP
- Expected Loss Ratio = 75% (i.e., it is likely, but not certain, that a total limits loss will be incurred under the treaty)
- Ceding Company keeps ceded premium except for “reinsurer’s margin” of 0.75% of GNEP

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## 5 – Aggregate Stop-Loss

Yet another Aggregate Stop-Loss (continued)

- Ceding Company maintains a notional account and accrues interest at 8%, compounded quarterly
- Losses are first paid from the Notional Account
- If the Notional Account drops below zero, then the reinsurer reimburses losses quarterly
- After all losses are paid, any remaining funds in the Notional Account are kept by ceding company and the reinsurer is relieved of all liability
- Ceding company may commute any time; if  $NA > 0$ , cedant keeps funds; reinsurer relieved of liability

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## 5 – Aggregate Stop-Loss

Points to Ponder

- At 8.2% it takes 8.75 years for an account to double in value; therefore, average duration of 8.75 years or longer implies profit for the reinsurer, even if the maximum limit is paid.
- Since this is expected to be the tail end of loss payments, it is very likely that payments will have an average duration greater than 8.75 years
- Ceding company is paying interest at a rate higher than its portfolio yield and higher than it can obtain on new funds. Is this a problem?

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## 5 – Aggregate Stop-Loss

More Points to Ponder

- Suppose the premium was 5.0%, not 7.5%; it would now take an average duration of at least 13.9 years to prevent losses under the treaty.
- Assuming the average duration is less than 13.9 years, would it matter that the ceding company is paying interest at a rate higher than its portfolio yield and higher than it can obtain on new funds?
- Again, is this just a way to discount loss reserves at above-market interest rates?

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## 6 – Reserve Protection R/I

Company wants to protect its reserve position from adverse development (e.g., as part of a corporate transaction like a merger, acquisition, or public offering)

- Aggregate Limit: 30% of loss and ALAE reserves
- Deductible: 85% of loss and ALAE reserves
- Premium 15% of loss and ALAE reserves
- Guaranteed cost; no retrospective adjustments or profit sharing
- Ceding Company and Reinsurer both agreed to the reserves prior to entering into the contract

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## 6 – Reserve Protection R/I

Points to Ponder

- Treaty is Retroactive; must account for as Retroactive Reinsurance?
- There is no gain or loss at inception for either party (other than acquisition costs for the reinsurer)
- After one year, reserves have developed to 105% of the original amount, how would the ceding company account for the benefit, if any, of this treaty?
- How would the assuming company account for the adverse development in reserves?
- What if there were favorable development?

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## For more information...

Dale F. Ogden, ACAS, MAAA  
Dale F. Ogden & Associates  
3620 Almeria Street  
San Pedro, CA 90731-6410  
310-547-1595  
[dfo@USActuary.com](mailto:dfo@USActuary.com)  
[USActuary@gmail.com](mailto:USActuary@gmail.com)  
[www.USActuary.com](http://www.USActuary.com)

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