Structured Risk Reinsurance
Defining The Terms

CLRS – September 12, 2005

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Outline

- **Finite Risk Reinsurance**
  - Examples Recently In The News
  - What Is Finite Reinsurance?
  - Profit & Loss Of Structured v. Conventional
  - Examples Of Structured Risk Reinsurance
  - Characteristics Of Structured Risk Reinsurance
- **FAS 113/SAP 62**
  - Short Duration Contracts Considered In This Session
  - Focus On Risk Transfer Evaluation
- **Risk Transfer Tests**
  - Paragraph 9: Reasonable Possibility of Loss
  - Paragraph 11: Substantially All Risk Transferred
  - 10-10 Rule
- **Reasonable Level Of Risk Transfer**
- **Proposed Revisions To SAP 62**

“Reinsurance” Deals In Question

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- **Critical Examples Recently In The News**
  - SEC Reporting Issue
    - *$500m Transaction*
    - *Originally Booked As Reinsurance*
    - *Subsequently Found By Reinsurer To Fail Risk Transfer*
  - Insolvent Mutual With Substantial Quota Shares
    - *Alleged By Some To Fail Risk Transfer*
- **Transactions Did Not Satisfy Risk Transfer**
- **Transactions Wrongly Recorded As Reinsurance**

Structured Reinsurance: Defining The Terms

What Is "Finite Reinsurance"?

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- **All (Re)Insurance Is Arguably "Finite"**
  - Aggregate Limits Are Common
    - *Most Insurance Policies Have Aggregate Limits*
    - *Catastrophe Reinsurance Has Aggregate Limits*
    - *Treaty Loss Ratio Caps And Aggregate Limits Are Common*
  - Other Risk Limiting Features
    - *Exlcusions*
    - *Reinstatement Premiums*
    - *Sliding Commissions*
    - *Corridors*
  - (Re)Insurer Surplus Is Finite

- **"Finite Reinsurance" Has Become Synonymous With No Risk**

- **"Structured Reinsurance"**
  - Must Satisfy FAS 113 To Be Recorded As Reinsurance
    - *Otherwise Booked As A Deposit*
  - Typical Structured Characteristics
    - *Less Reinsurer Downside*
    - *Lower Expected Cost of Reinsurance*

Structured Reinsurance: Defining The Terms
Profit & Loss Of Structured v. Conventional

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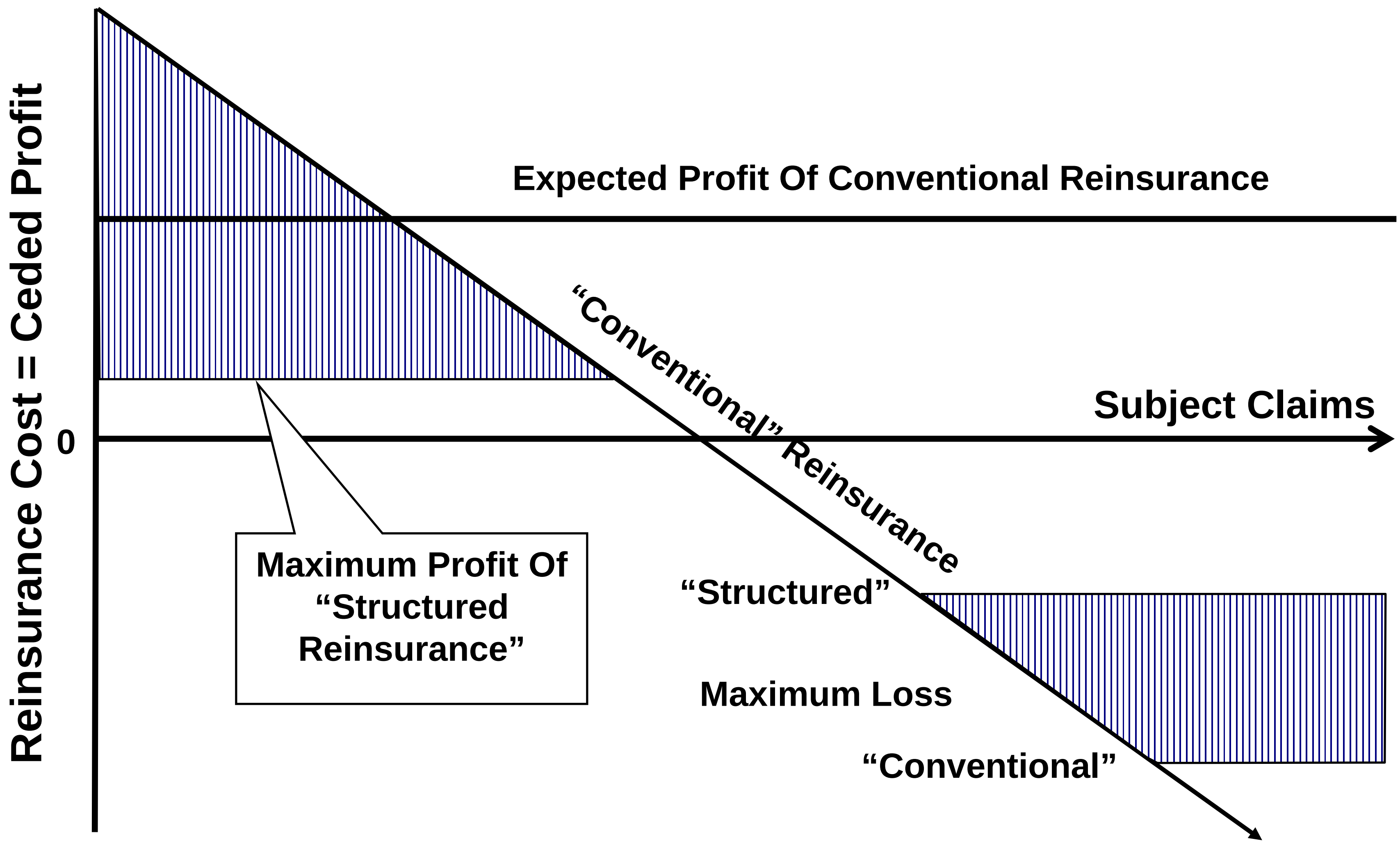

Typical Examples Of Structured Reinsurance

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- **Structured Quota Share**
  - Allows access to pro rata protection
  - Allows the customer to retain a share of the positive economics
- **Aggregate Stop Loss**
  - Provide whole account protection
  - a.k.a the “Ultimate Cat Cover” for management
- **Adverse Development Cover / Loss Portfolio Transfer**
  - Address old year liabilities
  - Permits management focus on ongoing business
  - May include transfer of claims management
- **Catastrophe Excess**
  - Use multiple years of coverage to reduce reinsurers’ risk charge
- **Any Reinsurance Can Be “Structured”**

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Characteristics Of Structured Risk Reinsurance

- **Aggregation of Risk**
  - Multiple year and/or multiple line
  - Allows for more accurate determination of limit to be purchased
    - *Reduced volatility i.e. portfolio effect works for the customer*
  - Removes uncertainty from planning process since limit is guaranteed
  - Tailored to customer's business, including "difficult to protect risks"
- **Aggregate Limit of Liability**
  - Allows customer to determine amount of coverage purchased
  - Aggregate limit allows reinsurer to provide more attractive terms to customer
  - Preserves reinsurer's ability to pay
- **Explicit Recognition of the Time Value of Money**
  - Substantial part of overall economics of the transaction
  - With funds withheld
    - *Investment income can be generated at a more cedents' yield*
    - *Rather than Reinsurer's risk free (or below) pricing rate*
- **Alignment of Interests**
  - Potential for substantial profit sharing in the event of favorable experience
  - Neither customer or reinsurer wants losses to exceed contractual limit

Structured Reinsurance: Defining The Terms
FAS 113/SAP 62

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- **FAS 113 Effective Since 12/15/1992**
- **SAP 62 Effective Since 1/1/1994**
  - Risk Transfer Criteria Follow FAS 113
- **113 Addressed Perceived Shortcomings In FAS 60**

"**The increasing concerns about the effect of reinsurance accounting for contracts that do not indemnify the ceding enterprise against loss or liability**, the limited accounting guidance on reinsurance in Statement 60, the lack of disclosure requirements for reinsurance transactions, and the inconsistency between the net accounting for reinsurance-related assets and liabilities and the established criteria for offsetting **led the Board to reconsider the accounting and reporting for reinsurance required by Statement 60.**"

Structured Reinsurance: Defining The Terms
Paragraph 9: "Reasonably Possible"

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- 9(b): "It is reasonably possible that the reinsurer may realize a significant loss from the transaction."
  - **Loss = NPV of all cash flows between parties**
- 64: "Consistent with Statement 5, an outcome is reasonably possible if its probability is more than remote."
- 67: "The probability of loss from any individual short-duration insurance contract generally is considered to be remote."

Structured Reinsurance: Defining The Terms

Paragraph 11: "Substantially All"

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- 11: "The ceding enterprise shall be considered indemnified against loss or liability relating to insurance risk only if **substantially all** of the insurance risk relating to the reinsured portions of the underlying insurance contracts has been assumed by the reinsurer."
- 67: "In this **narrow circumstance**, the reinsurer's economic position is virtually equivalent to having written the insurance contract directly. The risks retained by the ceding enterprise are insignificant, so that the reinsurer's exposure to loss is essentially the same as the insurer's."
- 67: "Most commonly, this arises when an **individual risk** or insurance contract, rather than a group of risks or contracts, is reinsured."

Structured Reinsurance: Defining The Terms
Difficulties With FAS 113

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- "Substantially All" Viewed As "Narrow Circumstance"
  - When Is Probability Of Significant Loss Remote?
  - Facultative Reinsurance Cited In Particular

- Significant Loss Probability May Be Remote For
  - Proportional Reinsurance
    - *Quota Share*
    - *Surplus Share*
  - Non-Proportional Reinsurance
    - *Catastrophe Excess*
    - *Per Risk and Per Occurrence Excess High Retentions*
    - *Cession Excess*
    - *Clash Covers*
  - Effectively Every Kind Of Reinsurance

- Significant Loss Probability Remote For Many Direct Portfolios

10-10 Rule

- **10% Chance Of A Loss of 10% Of Premium**
  - 10% chance apparently minimum “reasonably possible”
- **Not codified, but applied in practice**
- **Not applicable to all contracts**
  - **e.g. catastrophe excess**
  - **presumably “substantially all” applies in these cases**
- **Provides framework for an analysis**
- **Probability of some loss is greater than 10%**
- **Losses are on a continuum**
  - **“remote” probability events have been observed**
  - **losses greater than 10% should be considered**

Simple Example Of Risk Transfer Test

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Does Qualify as Sufficient Transfer of Risk

Reinsurance	
Type	Property Quota Share
Cede Commission	30%
Loss Cap	100%
Ceded Premium	$100

Subject Loss Parameters	
Average	60%
Standard Deviation	18%
Distribution	Lognormal

- **10% chance of 83.7% loss ratio**
- **Loss of 13.7%**
  - Premium: 100
  - Loss: (83.7)
  - Cede Commission: (30)
  - Net: (13.7)

In a full analysis the cash flows would be discounted using an appropriate interest rate. This has little impact on short-tail business such as a property book

Simple Example Of Risk Transfer Test

Does Not Qualify as Sufficient Transfer of Risk

Reinsurance	
Type	Property Quota Share
Cede Commission	30%
Loss Cap	**75%**
Ceded Premium	$100

Subject Loss Parameters	
Average	60%
Standard Deviation	18%
Distribution	Lognormal

- **10% chance of 83.7% loss ratio**
- **Loss of 5%**
  - Premium: 100
  - Loss: **(75)**
  - Cede Commission: (30)
  - Net: **(5)**

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Risk Transfer Documentation

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- **Client data available**
- **Assumptions made based on that data**
- **Supplementary data used and why**
- **Summary of conclusions**
- **When to document?**

Structured Reinsurance: Defining The Terms
Analytical Requirements

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- **Model reflective of all contract features**
  - Aggregate Limits
  - Corridors
  - Sliding Scale Ceding Commissions
  - Reinstatement Premiums
  - Additional Premiums
  - Others
- **Actuarial analysis consisting of**
  - Subject loss distribution, and
  - Subject loss payment pattern

Structured Reinsurance: Defining The Terms

Problems With 10-10

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- **Potential For "Binary" Covers**
  - Maximum Loss of 10%
  - Subject Loss Ratio Continues To Grow
  - Lack Of Coverage Into The "Remote" Region Of Loss
- **Direct Portfolios With Remote Chance Of Loss**
  - Often Candidates For Structuring
- **Alternative Test: Expected Reinsurer Deficit = 1%**
  - 10-10 Yields 1% ERD
  - As do 20-5, 5-20, 1-100

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Reasonable Level Of Risk Transfer

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- **Average P&C Company:**

Loss and LAE Ratio:	**74.6%**
Expense Ratio:	**24.9%**
Average Life of Loss Payments:	**2 years**

2003 National Underwriter Insurance Services including over 2,000 public companies.

Underwriting Margin

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Combined Ratio: **99.5%**

Nominal Underwriting Margin: **0.5%**

Present Value Underwriting Margin: **4.3%**

(PV Premium less PV expenses less PV losses) / (PV Premium) = (98.3% - 24.5% - 69.6%) / (98.3%) = 4.3%

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Reinsurance Capital

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- **It is in the best interest of the consumer to require a company to maintain sufficient capital.**

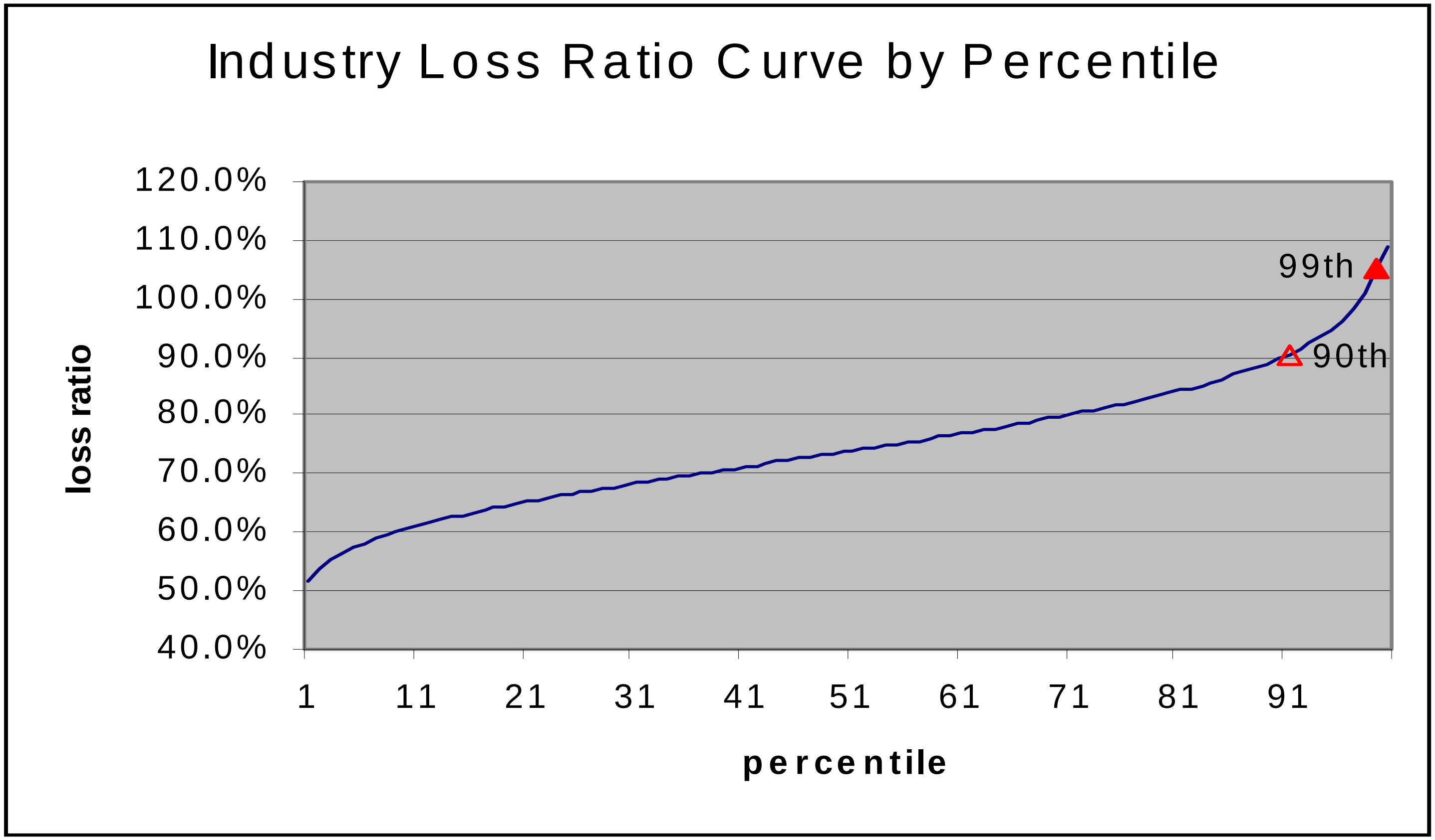
- **A widely considered benchmark is to hold enough to cover a 99th percentile loss position.**

- **Using 2003 industry results and a lognormal distribution, the 99th percentile loss ratio is 105.0% nominal loss ratio; 97.9% present value.**

- **The resulting Present Value Underwriting Margin is -24.5%** = (98.3% - 24.5% - 97.9%) / (98.3%).

- **Capital would be allocated at 24.5% of premium.**

Industry Loss Curve



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ROE

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- ROE = Expected profit / allocated capital
- ROE = 65% of 4.3%/24.5% = 11.4%
- Actual historical P&C returns:

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ROE As Function Of Risk Transfer

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- **Matrix of ROE results with 10/10 alternatives**

		Chance of loss		
		10%	15%	20%
Size of loss	10%	11.40%	8.10%	5.60%
	15%	7.70%	5.40%	3.50%
	20%	5.70%	3.90%	2.30%

- **Average US stock market return 1990-1999 = 18%**
- **Average US stock market return 1926-1999 = 11%**
- **Higher risk thresholds will restrict availability**

Structured Reinsurance: Defining The Terms
Proposed Revisions To SAP 62

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- **Critical SAP 62 Concept Bifurcate Based On Rules**
  - E.g. Per Risk Excess Need Not Be Bifurcated
    - *But Per Risk Can Be Structured To Eliminate Risk*
    - *Per Occurrence, Facultative, Unlimited Flat Cede Quota Share OK*
  - Any Contract With An Basic Features To Be Bifurcated
    - *Loss Corridors*
    - *Sliding Scale Ceding Commissions*
    - *Aggregate Loss Ratio Caps*
    - *Multi-year*
  - Rules Based Accounting v. Principals Based Accounting

- **Bifurcation Basis**
  - Ceded Losses To 90% Confidence Level Deposited
  - Excess Of 90% Confidence Reinsurance
  - **Inconsistent With Accounting For Original Risk**

Structured Reinsurance: Defining The Terms
Proposed Revisions To SAP 62

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- **Function Of Adjustable Features**
  - Structure Reasonable Economic Transaction
- **Example: Quota Share With Sliding Commission**
  - Loss Ration 75% : Commission 20% = Marginal Cost
  - Loss Ration 65% : Commission 30% = Average Cost
  - Structure Allows Ceding Company To Cover Average Cost
  - SAP 62 Impact
    - *Bifurcation May Not Be An Acceptable Outcome*
    - *Flat Commission Of 20% Increasing Cost Of Cover*
- **Example: Multi-year**
  - Multi-year Reinsurance Can Be Riskiest Of All
  - SAP 62 Assumes It Required Bifurcation