2007 CAS SPRING MEETING

The State of the Casualty Reinsurance Market

June 19, 2007

Linda C. Johnson
Executive Vice President
Benfield

Linda.Johnson@us.benfieldgroup.com
952.886.8093

BENFIELD

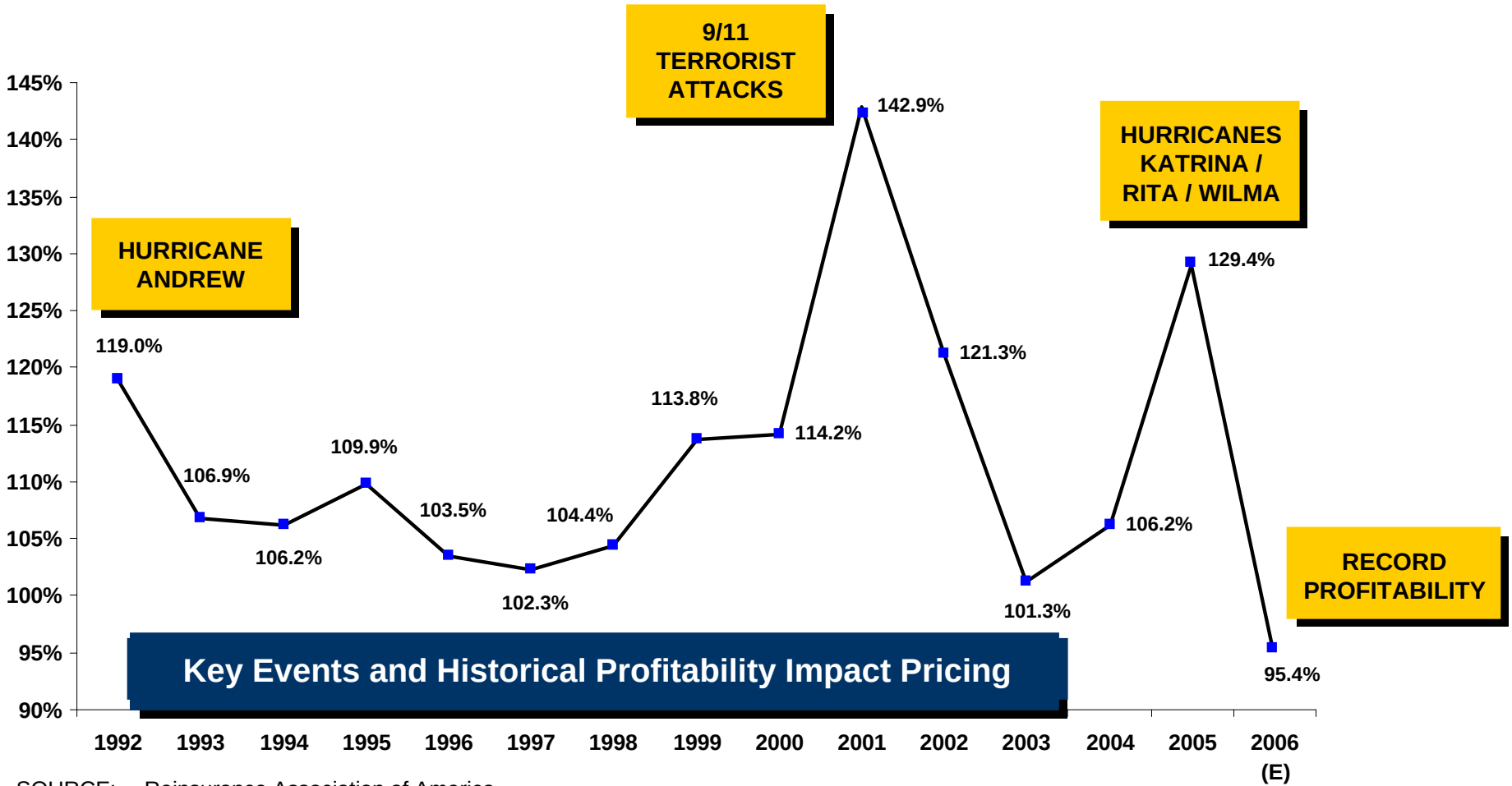
Table of Contents

BENFIELD

What Factors are Influencing the Casualty Reinsurance Market?

What Factors are Influencing the Casualty Reinsurance Market?

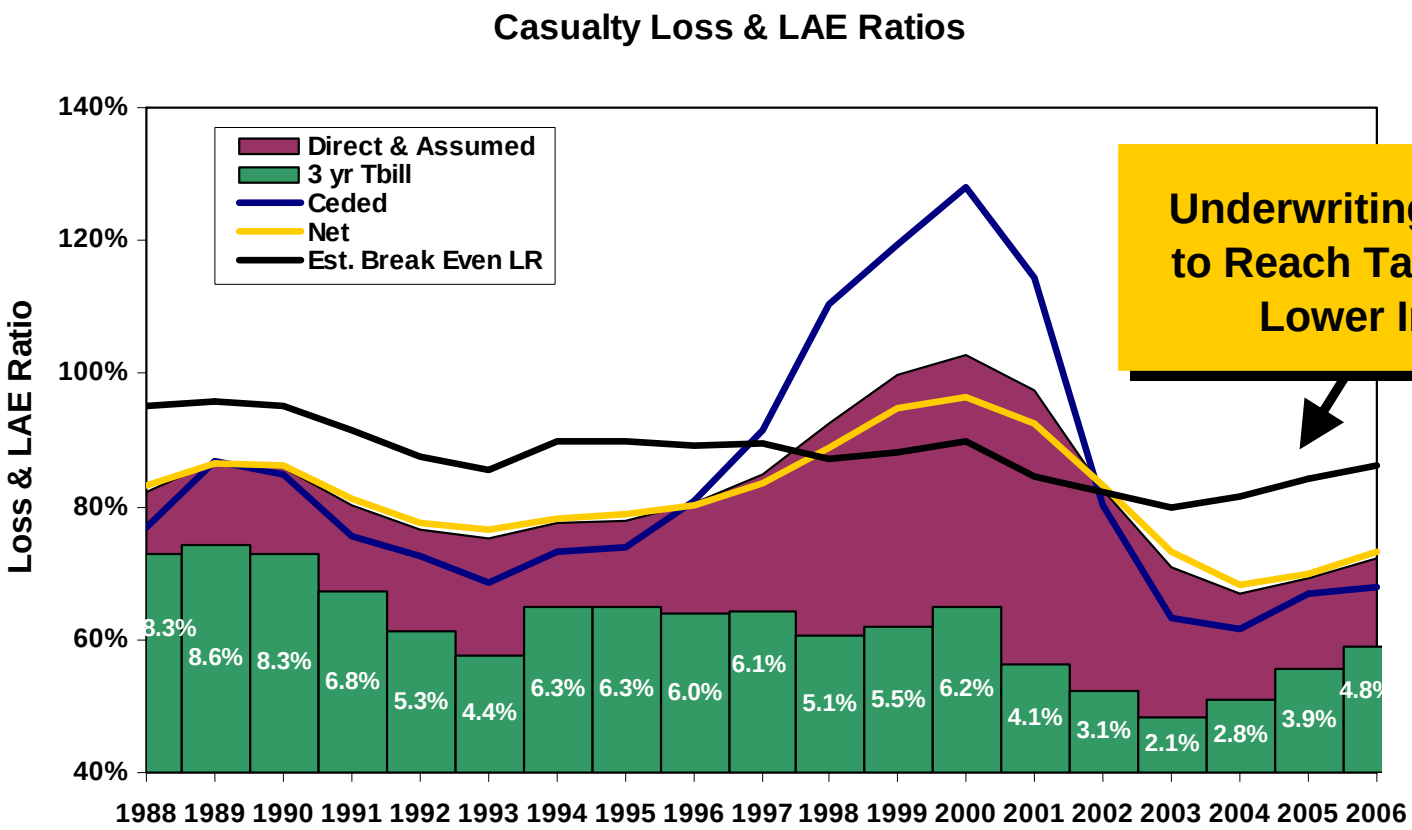
US P&C Reinsurance Combined Ratios



SOURCE: Reinsurance Association of America

BENFIELD

What Factors are Influencing the Casualty Reinsurance Market?



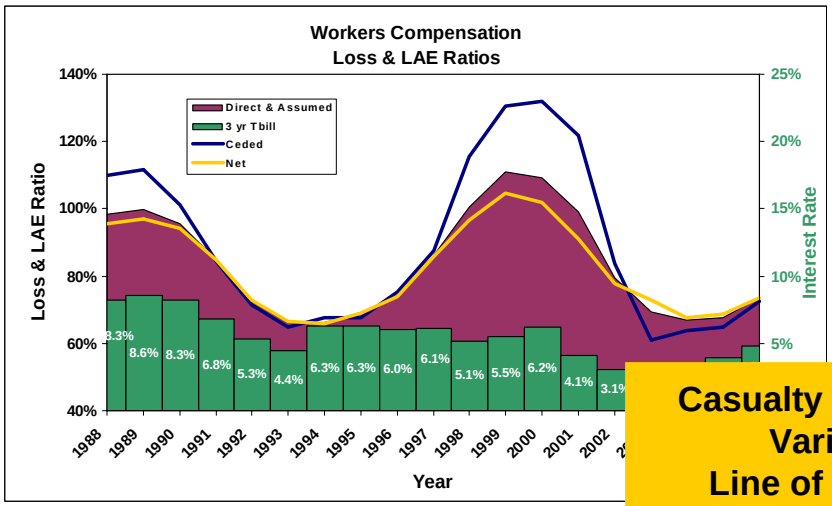
Underwriting Profit is Needed to Reach Target ROEs Due to Lower Interest Rates

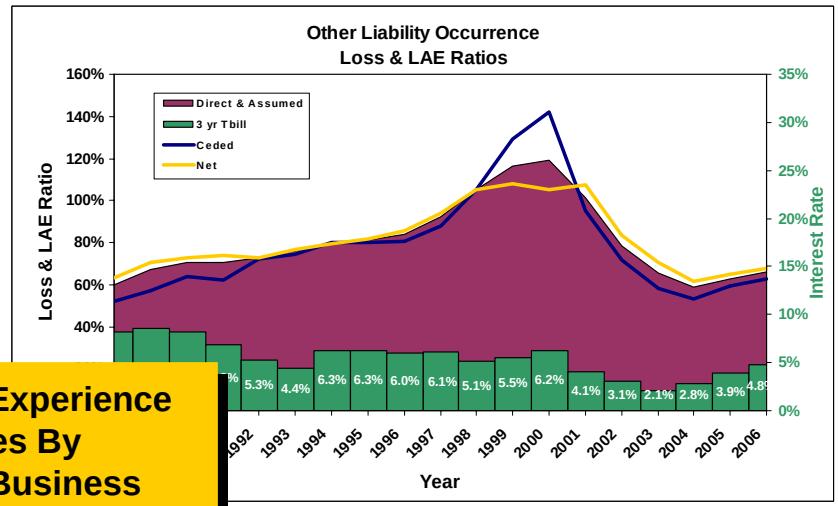
SOURCE: Highline Data and Federal Reserve Economic Database

Interest Rates and the Underwriting Cycle Impact Future Pricing—Today's Relatively Lower Interest Rates Should Mitigate Rate Decreases

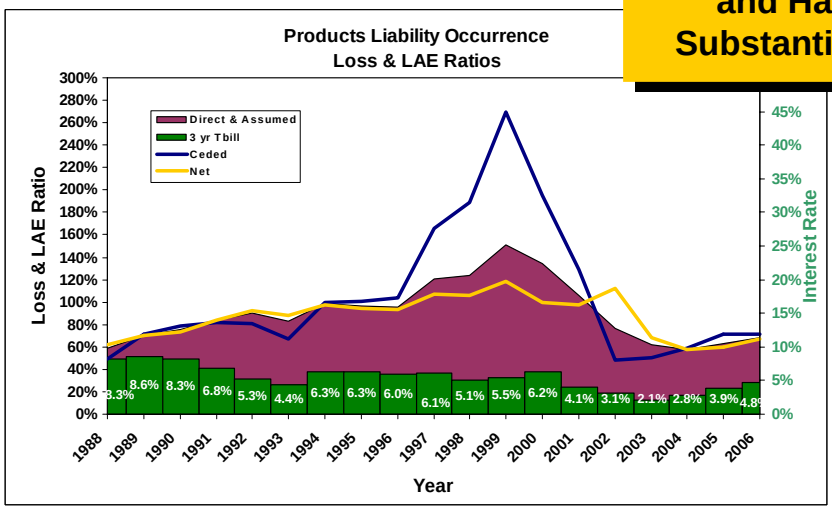
BENFIELD

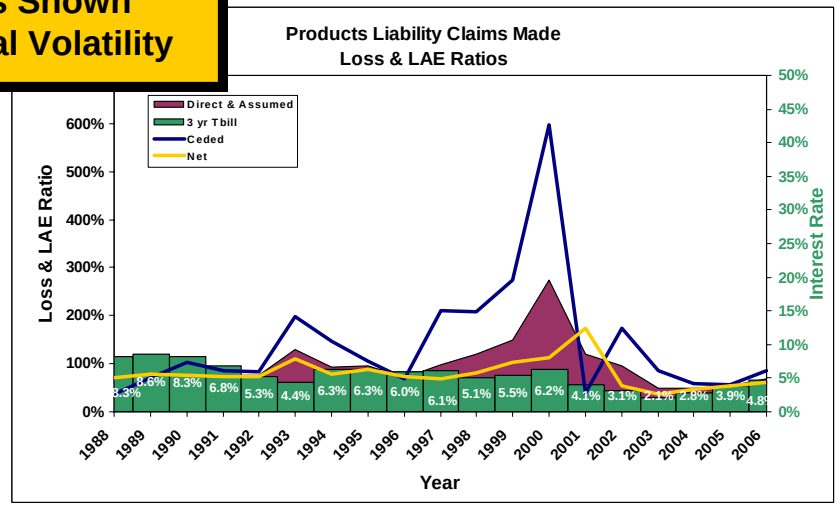
What Factors are Influencing the Casualty Reinsurance Market?





Casualty Experience Varies By Line of Business and Has Shown Substantial Volatility

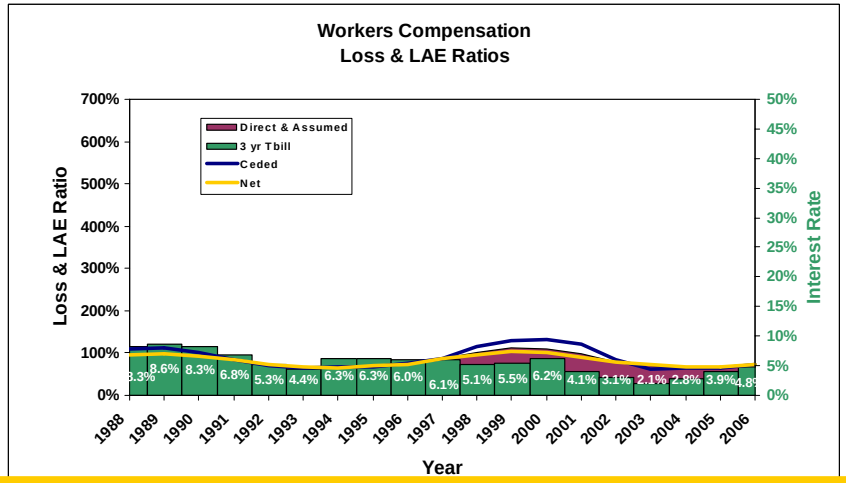


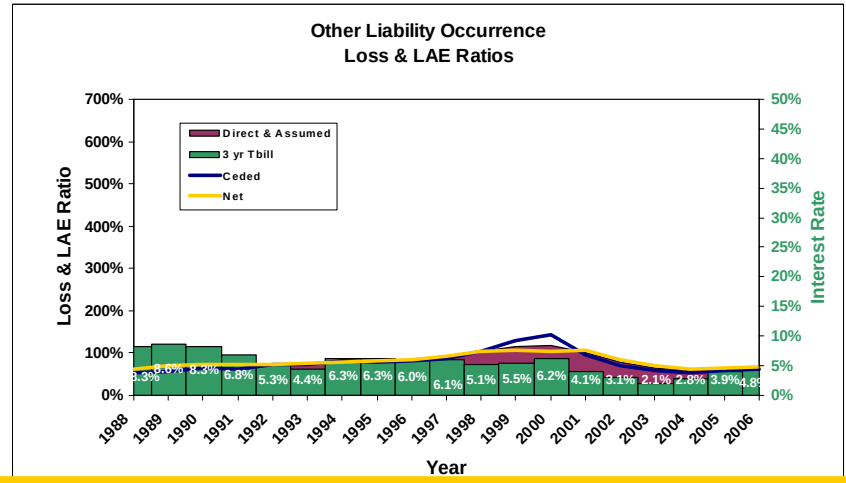


SOURCE: Highline Data and Federal Reserve Economic Database

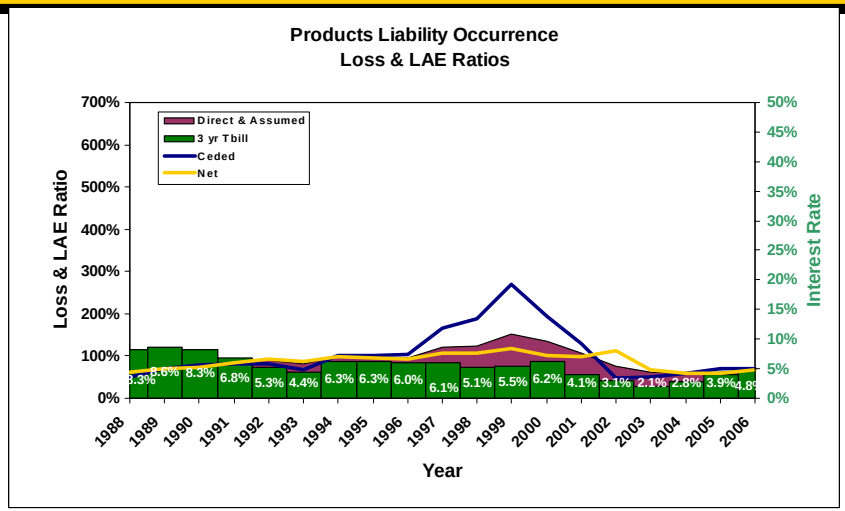
BENFIELD

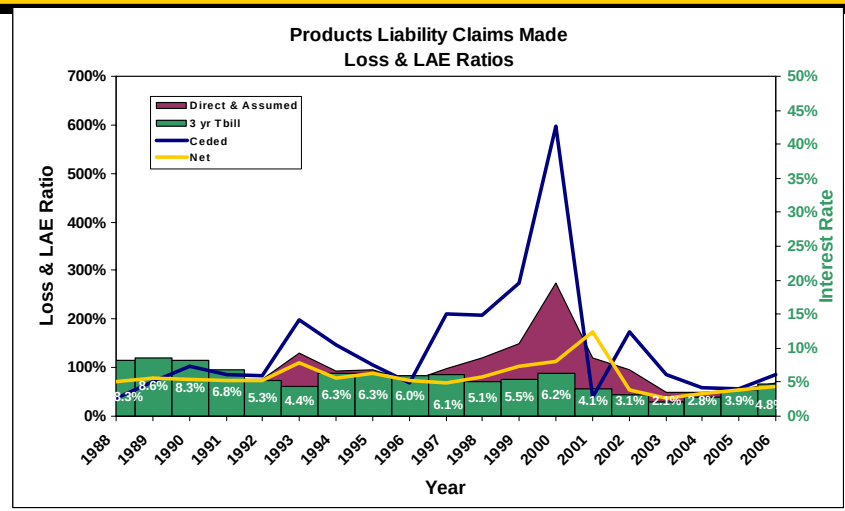
What Factors are Influencing the Casualty Reinsurance Market?





When a Consistent Scale is Used, Year 2000 Products Liability Ceded Results Become Highlighted



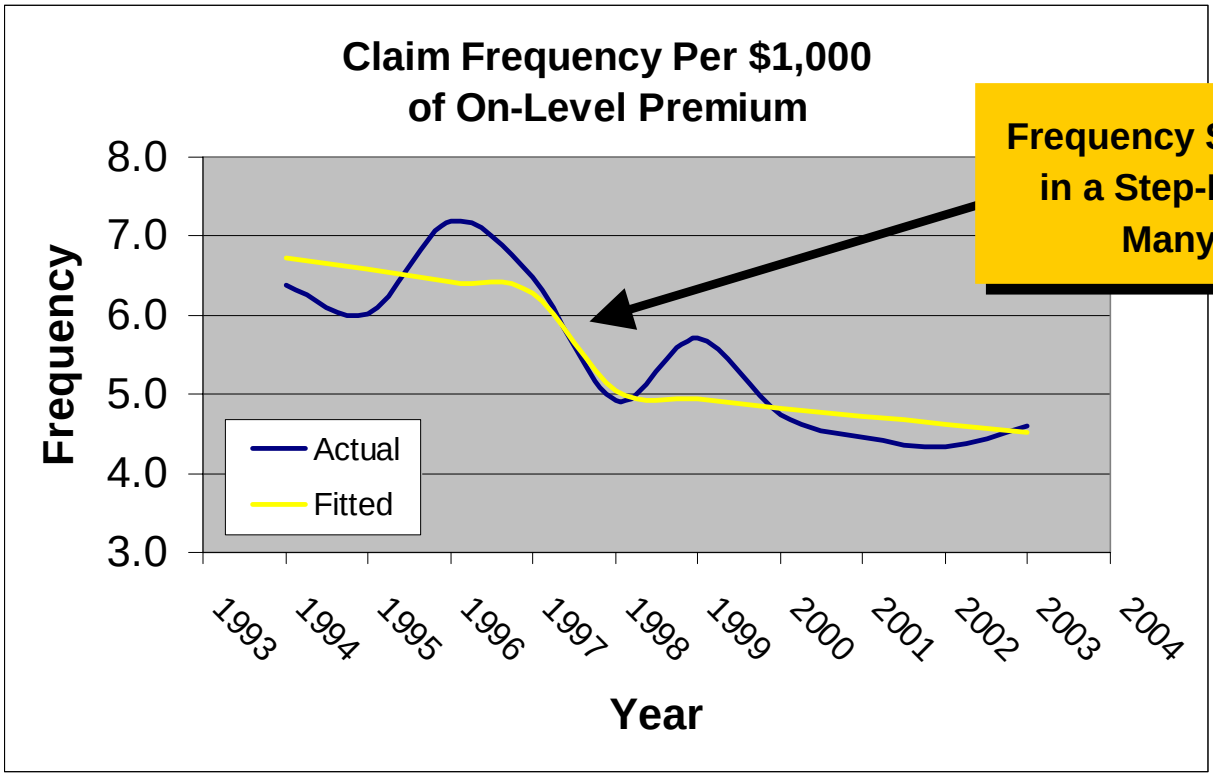


SOURCE: Highline Data and Federal Reserve Economic Database

BENFIELD

What Factors are Influencing the Casualty Reinsurance Market?

Underlying Claims Frequency and Severity Assumptions Impact Reinsurers' Allocation of Capital to Specific Lines of Business…

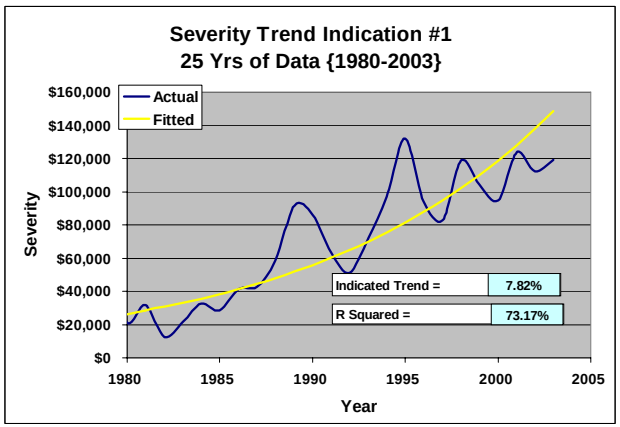


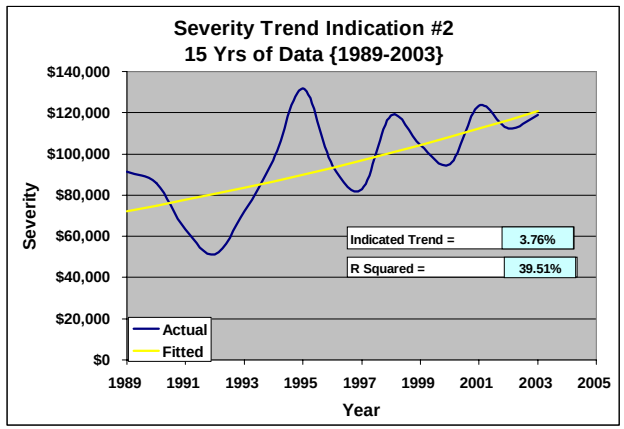
Frequency Seems to Be Dropping in a Step-Like Fashion Across Many Casualty Lines

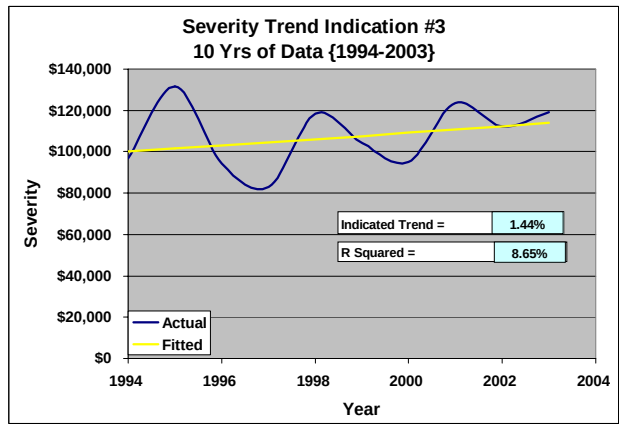
SOURCE: Sample Insurance Company Data

What Factors are Influencing the Casualty Reinsurance Market?

Severity Indications By Year Interval







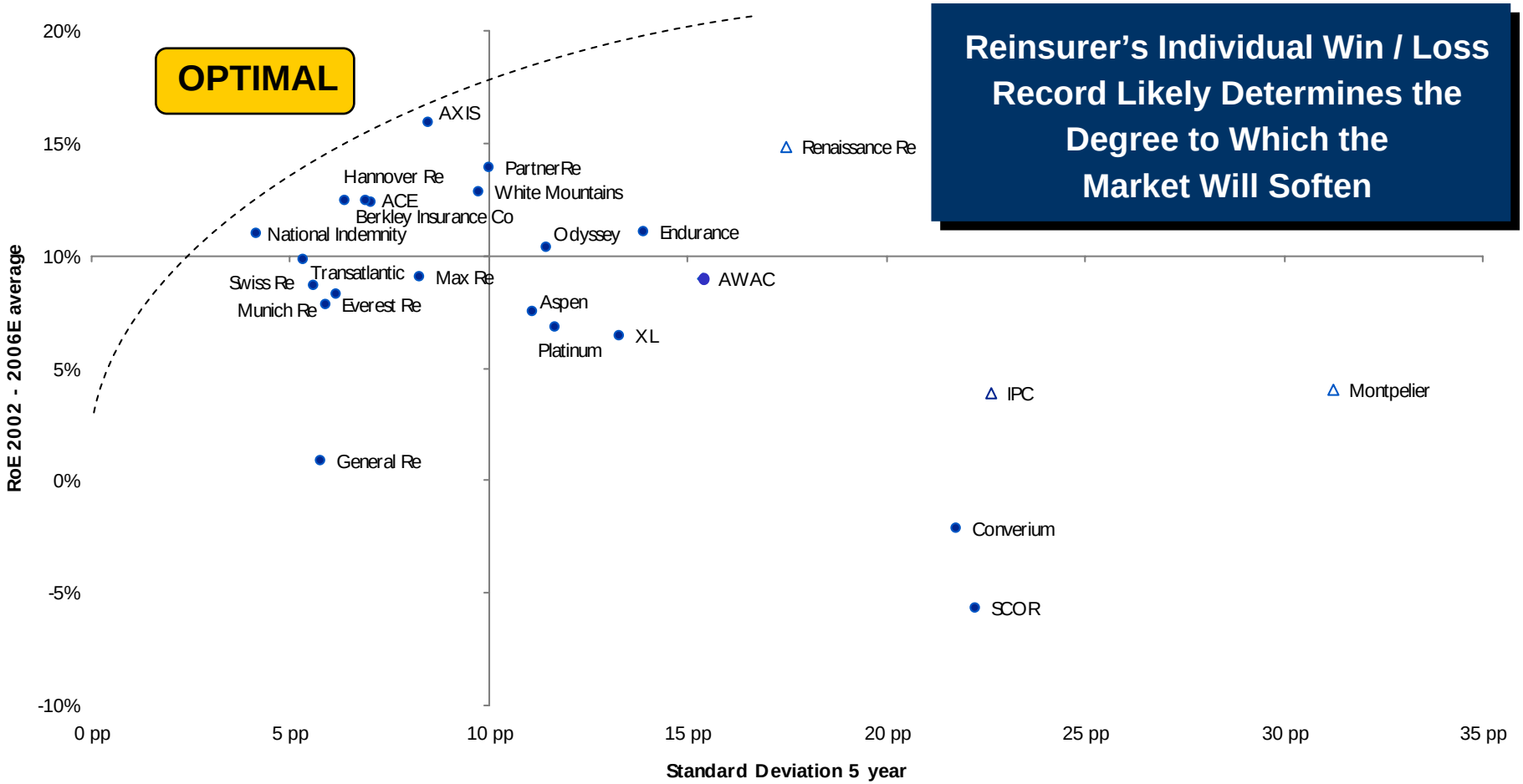
SOURCE: Sample Insurance Company Data

…the Number of Selected Years Materially Impacts One's View of Claims Severity Trend

BENFIELD

What Factors are Influencing the Casualty Reinsurance Market?

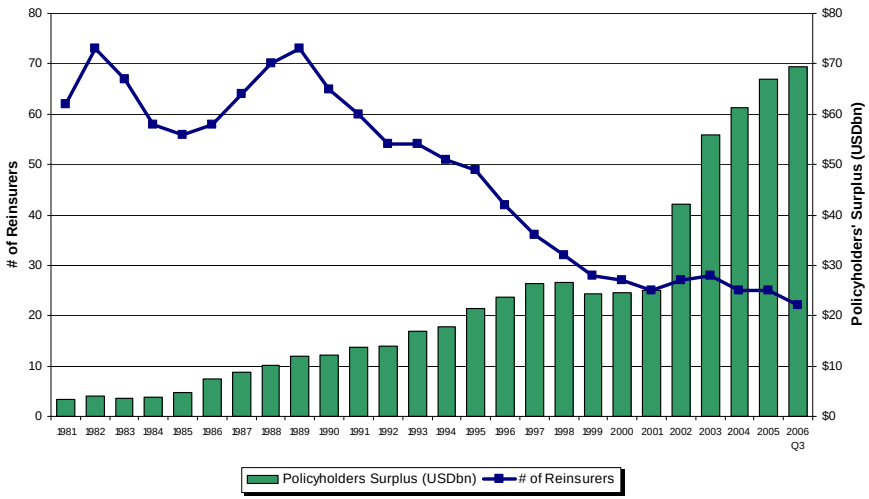
Reinsurers' 5-Year Risk / Return Comparison



NOTE: Reinsurers labeled with a triangle are monoline property reinsurers
SOURCE: Benfield's 2007 Global Reinsurance Market Review – Pick 'n Mix

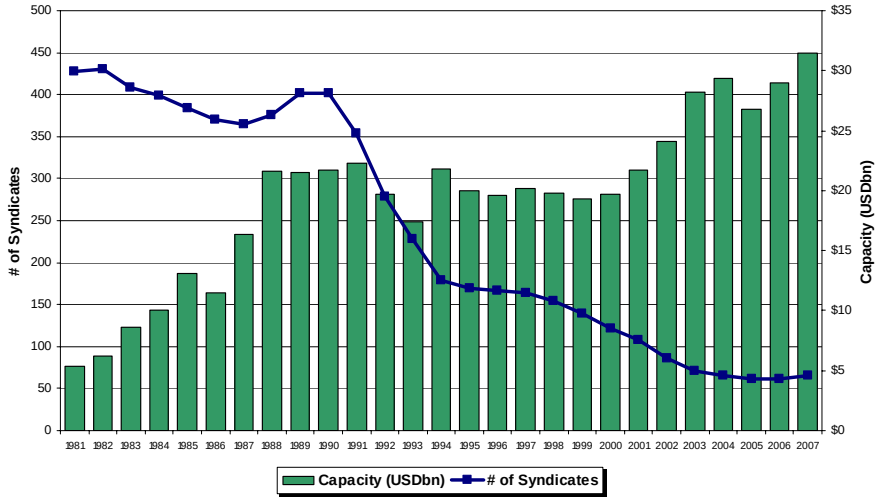
What Factors are Influencing the Casualty Reinsurance Market?

US R/I Industry Policyholders' Surplus



SOURCE: Reinsurance Association of America

Lloyd's Capacity



SOURCE: Lloyd's of London

The Amount of Capital, as well as the "Per Capita" Capital, Drives More (or More Significant) Programs to Fewer Key Players

BENFIELD

What Factors are Influencing the Casualty Reinsurance Market?

In Summary, Factors Impacting the Casualty Reinsurance Market Include:

- **Cycle Management**
- **Claims Trends in Most Lines Have Improved Materially in Recent Years**
- **Strong Reinsurer Returns in 2006**
- **Interest Rates are Relatively Low But Improving**
- **Growing Competition For Remaining Programs**
  - Cedents Increasing Retentions
  - Role of Capital Markets
- **Reinsurers Remain Optimistic**

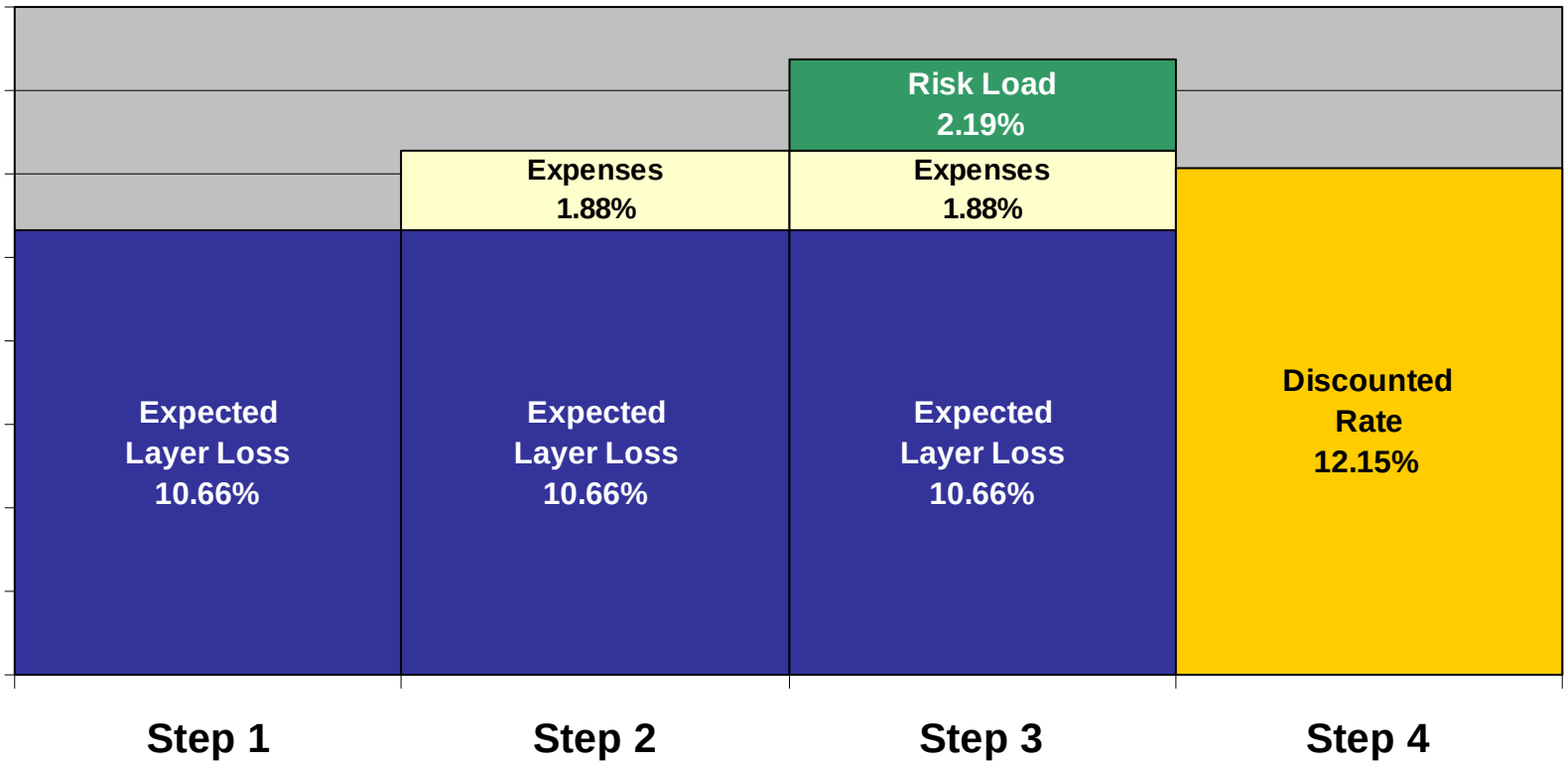
BENFIELD

What Factors Influence the Price of a Specific Reinsurance Program?

What Factors Influence the Price of a Specific Reinsurance Program?

Derivation of a Reinsurance Rate

$500K xs $500K Flat Rate



Reinsurance Ratemaking Parallels Primary Ratemaking

BENFIELD

What Factors Influence the Price of a Specific Reinsurance Program?

CASUALTY LINES COMBINED

Direct & Assumed Loss & LAE Ratio

Accident/Report Year	Schedule P Year 1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Adverse/Favorable Development
1988	82.03%										0.00%
1989	86.78%	86.71%									-0.08%
1990	86.34%	86.10%	85.82%								-0.60%
1991	81.40%	81.16%	80.64%	80.27%							-1.38%
1992	78.15%	77.86%	77.02%	76.87%	76.69%						-1.87%
1993	77.20%	76.77%	75.68%	75.32%	75.13%	75.16%					-2.64%
1994	79.30%	78.83%	77.74%	77.47%	77.29%	77.15%	77.44%				-2.35%
1995	79.73%	79.20%	78.18%	77.90%	77.67%	77.54%	77.87%	77.91%			-2.29%
1996	80.35%	80.92%	80.11%	79.98%	79.54%	79.59%	79.72%	79.85%	80.37%		**0.02%**
1997	81.19%	82.04%	82.50%	83.07%	83.51%	83.85%	84.05%	84.15%	84.79%	84.82%	**4.48%**
1998		83.99%	84.97%	86.83%	88.19%	89.81%	90.64%	91.51%	92.58%	92.58%	**10.24%**
1999			85.51%	88.80%	92.96%	95.56%	97.72%	97.94%	99.40%	99.88%	**16.81%**
2000				87.01%	90.51%	94.74%	98.55%	100.22%	102.19%	102.89%	**18.25%**
2001					87.78%	89.41%	92.30%	94.10%	96.86%	97.55%	**11.13%**
2002						79.48%	79.76%	80.35%	81.97%	82.51%	**3.81%**
2003							74.64%	71.66%	71.09%	70.74%	-5.22%
2004								72.78%	68.68%	66.75%	-8.28%
2005									72.74%	69.39%	-4.61%
2006										72.11%	0.00%
Average	81.25%	81.36%	80.82%	81.35%	82.93%	84.23%	85.27%	85.05%	85.07%	83.92%	
Standard Deviation	3.16%	3.39%	3.73%	4.80%	6.50%	7.59%	8.83%	10.28%	12.21%	13.73%	
CoV	3.89%	4.16%	4.61%	5.89%	7.84%	9.01%	10.35%	12.09%	14.35%	16.36%	

Adverse Development Creates Parameter Uncertainty

Overall	
Average	82.19%
Standard Deviation	10.24%
CoV	12.46%

The Gross Loss Ratio Assumption is a Key Determinant in Establishing the Reinsurance Price

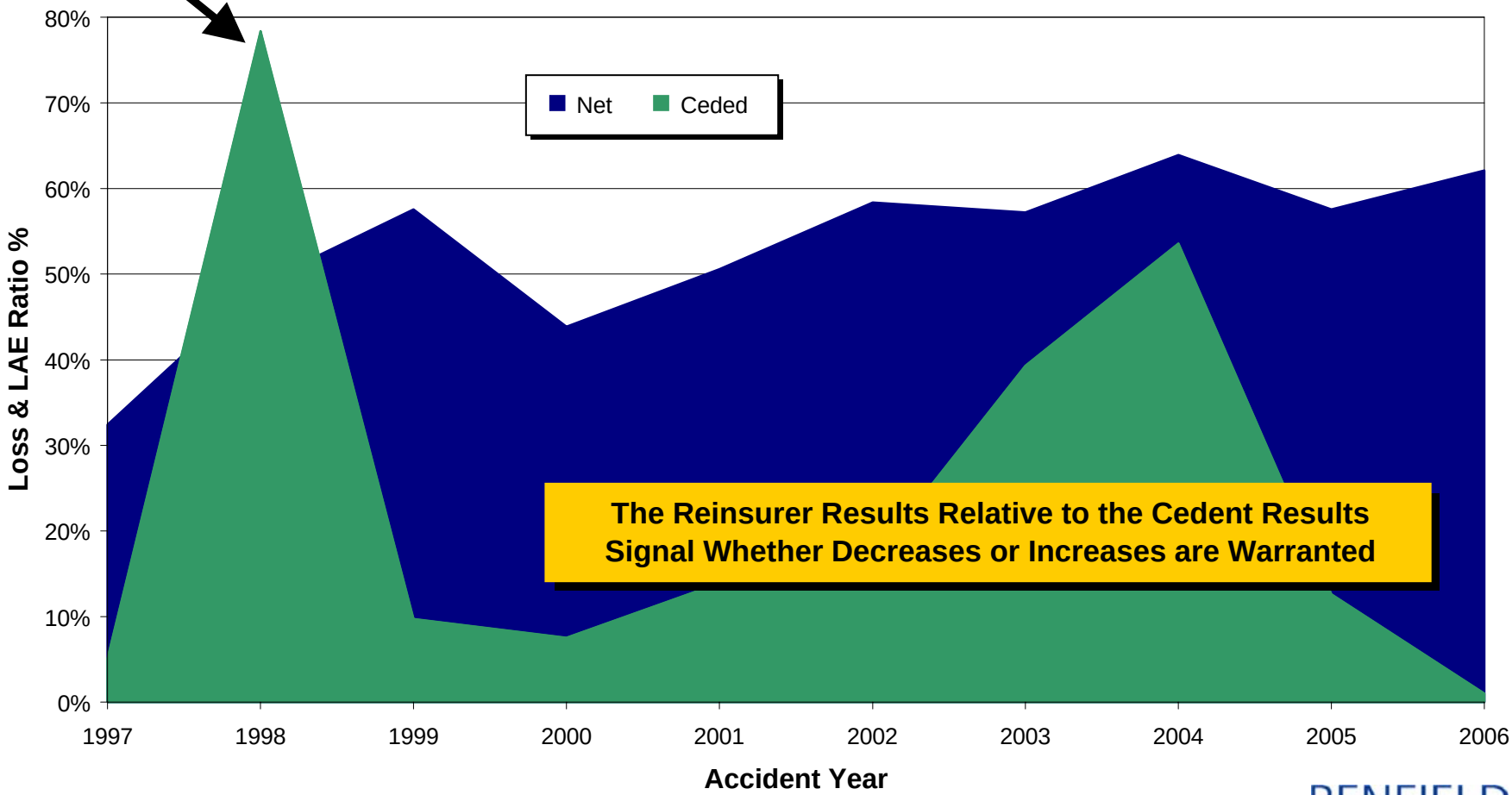
SOURCE: Highline Data and Federal Reserve Economic Database

BENFIELD

What Factors Influence the Price of a Specific Reinsurance Program?

After Expenses & Investment Income, Reinsurer is Still Making Money

Company Specific Results

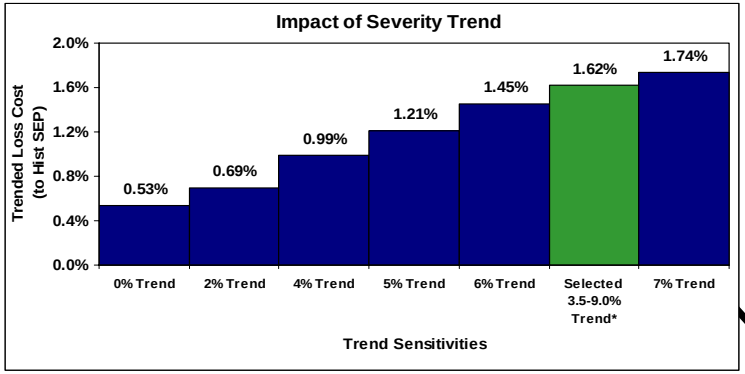


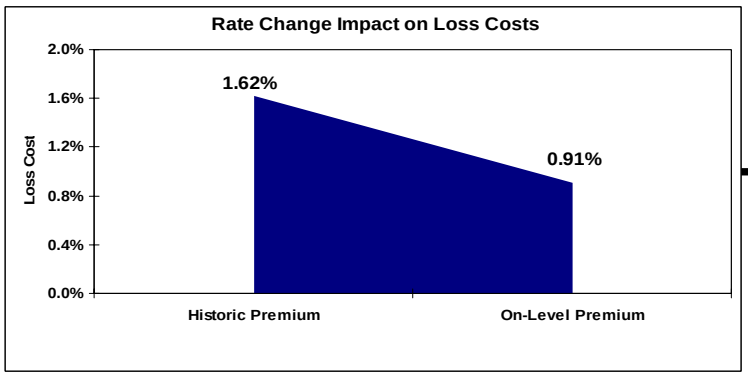
The Reinsurer Results Relative to the Cedent Results Signal Whether Decreases or Increases are Warranted

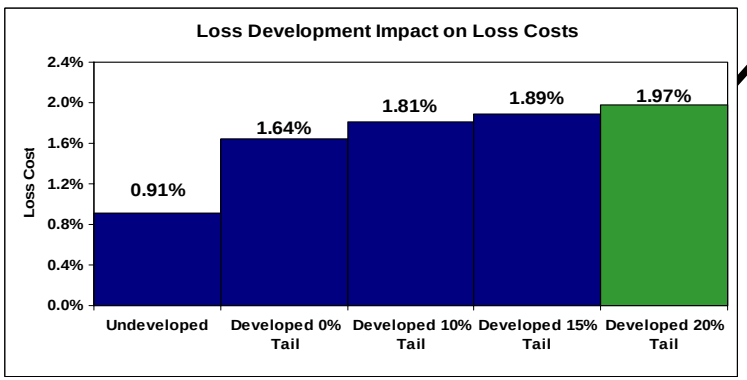
SOURCE: Sample Insurance Company Data

BENFIELD

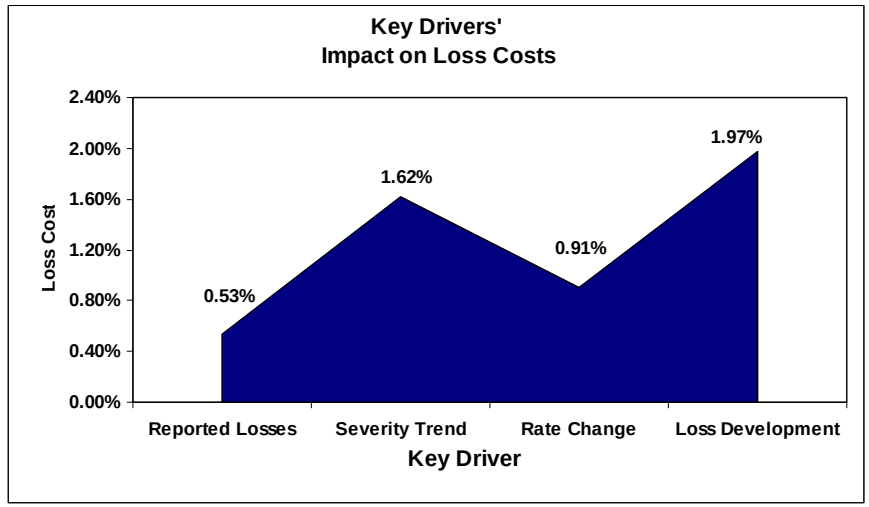
What Factors Influence the Price of a Specific Reinsurance Program?







The Cumulative Impact of Individual Assumptions Materially Impacts the Ultimate Rate



SOURCE: Sample Insurance Company Data

BENFIELD

What Should Be Expected at Renewal?

What Should Be Expected at Renewal?

Standard & Poor's Reinsurance Outlook

STRENGTHS

- Continuation of strong pricing environment
- Improved risk-management and risk-modeling processes
- Continued strong investor support
- Moderating reserve-strengthening trends
- Expectation of reduced cyclicality driven by increased focus on profitability

WEAKNESSES

- Poor historical operating performance and high earnings volatility
- Potential increase in frequency of large natural catastrophe events
- Significant retrocession capacity squeeze
- Potential over-reliance on capital markets for capital support
- Continued low barriers to entry

SOURCE: S&P Global Reinsurance Highlights (2006 Edition)

BENFIELD

What Should Be Expected at Renewal?

- **"In 2007, AM Best believes that profit margins will likely be eroded to a certain extent as a result of stronger balance sheets, pricing deterioration, and increased competition; however, it should be another profitable year, for the US property / casualty industry as a whole."**
  - *Review / Preview, January 2007*

- **"AM Best Co.'s 2007 outlook for the global reinsurance sector is stable, which reflects a change from a negative outlook originally assigned nearly two years ago. However, should price deterioration and competition persist at a faster pace than anticipated, the outlook could be revised back to negative by the end of the year."**
  - *March 1, 2007 Press Release*

What Should Be Expected at Renewal?

- **Overall a Very Healthy Market**
- **Softening Phase of the Underwriting Cycle Has Begun**
- **Reinsurance Costs Have Stabilized or Decreased Due to the Absence of Large CAT Losses and a Firm Pricing Environment in 2006**
- **Recapitalization From Internal Profits**
  - Many Reinsurers Reported Record Performance in 2006
- **Inflow of $17B of New Capital to the Reinsurance Industry in 2006**

BENFIELD

What Should Be Expected at Renewal?

Direction of Reinsurance Pricing in 2007

Workers' Compensation:

- Lower Layers
- Mid Layers
- Catastrophe Layers

Professional Lines:

- D&O
- Medical Malpractice
- Miscellaneous E&O

Umbrella / Excess Liability:

- Standard Market
- Excess & Surplus Lines

BENFIELD

What Should Be Expected at Renewal?

- **Professional Lines**
  - Terms are Holding / Reinsurers Selective
  - Program Balance Very Important
- **Workers Compensation**
  - Fewer Reinsurers Interested in Per Person Exposed Layers Than Catastrophe Layers
- **Standard Casualty Protections**
  - Limits Exposed / Working Layers Heavily Dependent on Individual Company Experience, Original Rate Increases / Decreases, Limit / Attachment Distribution, Program Balance

BENFIELD

What Casualty Reinsurance Product Innovations Have Occurred Recently?

What Casualty Reinsurance Product Innovations Have Occurred Recently?

- **Workers' Compensation Catastrophe Protections**
- **Casualty Clash / Accumulation Protections**
- **D&O Systemic Protections**

BENFIELD

What Should Be Considered Before Purchasing Casualty Reinsurance?

BENFIELD

What Should Be Considered Before Purchasing Casualty Reinsurance?

1. Why is the Reinsurance Being Purchased?
2. What Risk is Intended to Be Transferred?
3. What Type of Reinsurance Protection is Being Considered?
4. What is the Best Premium Mechanism?
5. What is Covered?
6. Is It Cost Effective?
7. Is It Appropriately Transferring Risk?

BENFIELD

What Factors Should Be Considered in Establishing a Retention?

- Impact on Policyholder Surplus
- Written Premium
- Impact of One Loss on Net Income
- Claims Frequency and Severity
- Capital Implications / Parent Company Support
- Cash Flow Implications
- Cost of Reinsurance / Market Conditions
- Rating Agency Impact
- Volatility of Underwriting Results
- Net Benefit of Reinsurance
- Return of Risk Adjusted Capital

BENFIELD

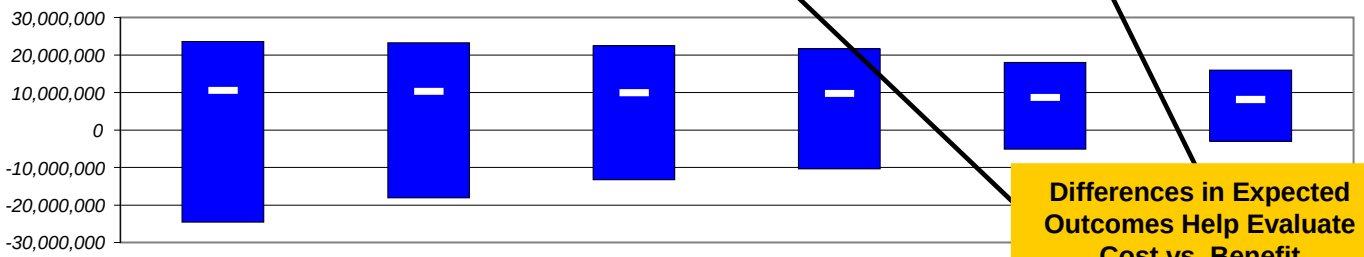
Volatility of Underwriting Result

XYZ Insurance Company
Retention Analysis
Net Underwriting Gain/Loss by Retention

Alternatives Analyzed

	Gross	$20M Retention	$10M Retention	$5M Retention	$1M Retention	$500K Retention
Adverse Outcomes						
10 Year Return Time	467,234	85,116	554,302	1,431,123	2,781,540	3,263,090
20 Year Return Time	-4,904,190	-4,720,358	-3,174,240	-1,591,111	710,487	1,627,414
50 Year Return Time	-13,414,539	-10,701,669	-7,487,612	-5,175,326	-1,646,508	-360,289
100 Year Return Time	-19,445,761	-14,566,778	-10,501,776	-7,777,288	-3,308,927	-1,685,690
250 Year Return Time	-26,578,342	-19,269,431	-14,076,248	-11,245,907	-5,776,695	-3,451,141
500 Year Return Time	-31,532,067	-22,819,573	-17,246,461	-13,557,211	-7,312,408	-4,961,078
Expected Result: *Mean*	10,552,696	10,301,013	9,941,706	9,763,422	8,715,775	8,118,311
Volatility Measure: *Standard Deviation*	8,325,396	7,742,087	6,980,686	6,243,981	4,494,133	3,677,032

99% Range of Outcomes



Differences in Expected Outcomes Help Evaluate Cost vs. Benefit

99% Range of Outcomes						
High	23,629,826	23,205,026	22,480,076	21,738,026	18,100,979	15,979,600
Mean	10,552,696	10,301,013	9,941,706	9,763,422	8,715,775	8,118,311
Low	-24,628,633	-18,144,686	-13,378,908	-10,458,760	-5,152,661	-3,019,978

Dynamic Financial Analysis is a Valuable Tool in Analyzing Continuum of Cost / Benefit Trade Offs of Alternative Structures and Retentions

BENFIELD

Net Benefit of Reinsurance

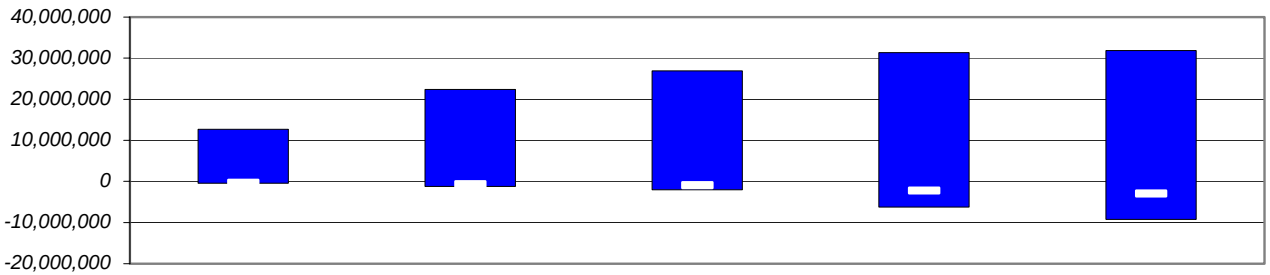
Cash Flows Associated With Reinsurance Transactions

Evaluating Multiple Metrics Helps One to Triangulate Information to Identify the Optimal Structure

XYZ Insurance Company
Retention Analysis
Net Benefit of Reinsurance Statistical Summary by Retention (Recoveries - Ceded Premium)

	$20M Retention	$10M Retention	$5M Retention	$1M Retention	$500K Retention
10 Year Return Time	-467,280	-1,264,725	843,122	4,527,232	4,864,801
20 Year Return Time	-467,280	1,021,174	5,282,831	9,837,265	10,276,168
50 Year Return Time	799,533	10,405,112	15,071,815	19,730,496	19,941,514
100 Year Return Time	8,728,178	18,314,100	22,579,710	26,603,908	26,848,030
250 Year Return Time	13,565,362	23,279,519	27,906,022	32,874,549	33,519,559
500 Year Return Time	16,069,442	25,730,508	31,143,128	37,283,576	38,063,273
Mean	-276,851	-672,089	-868,201	-2,020,614	-2,677,824
Standard Deviation	1,516,055	3,071,531	4,170,479	6,293,231	6,864,855

99% Range of Outcomes



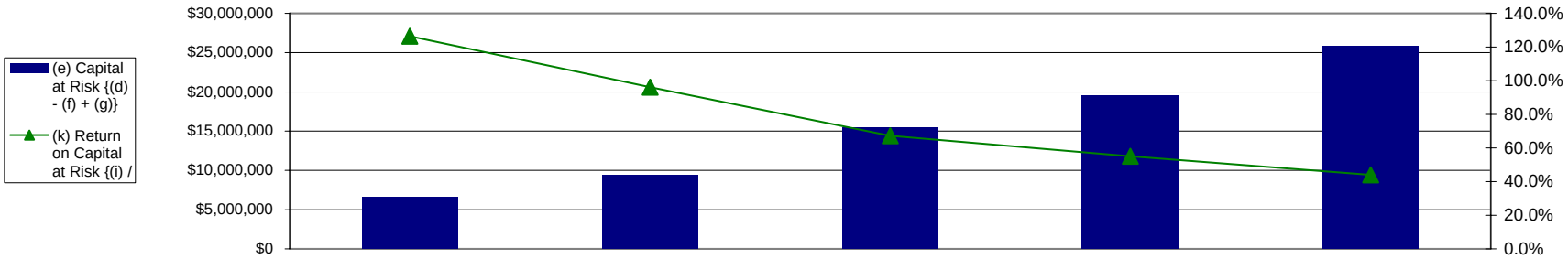
99% Range of Outcomes					
High	12,690,076	22,360,961	26,882,752	31,359,336	31,859,265
Mean	-304,536	-739,298	-955,022	-2,222,675	-2,945,606
Low	-467,280	-1,264,725	-2,080,980	-6,293,925	-9,307,018

BENFIELD

Return on Risk Adjusted Capital

XYZ Insurance Company

Return on Risk Adjusted Capital (RORAC) -- Cedent Perspective



	$500K Retention	*$1M Retention*	*$5M Retention*	*$10M Retention*	*$20M Retention*
(a) 1,000 Year Net Losses	*34,515,622*	*40,817,234*	*51,599,890*	*57,763,276*	*66,737,190*
(b) 250 Year Net Losses	*31,474,931*	*37,126,642*	*46,899,995*	*51,213,010*	*57,880,006*
(c) 100 Year Net Losses	*29,528,171*	*34,436,201*	*43,051,362*	*47,181,129*	*52,683,943*
(d) Blended Net Losses {avg of (a), (b), (c)}	*31,839,575*	*37,460,026*	*47,183,749*	*52,052,472*	*59,100,380*
(e) Capital at Risk {(d) - (f) + (g)}	*6,629,477*	*9,459,928*	*15,445,784*	*19,480,374*	*25,775,187*
(f) Total Net Premium	*36,460,098*	*39,250,098*	*42,987,965*	*43,822,098*	*44,575,193*
(g) Total Expenses	*11,250,000*	*11,250,000*	*11,250,000*	*11,250,000*	*11,250,000*
(h) Expected Loss	*17,091,787*	*19,284,324*	*21,974,543*	*22,630,392*	*23,024,179*
(i) Economic Gain/Loss {(f) - (g) - (h)}	*8,118,311*	*8,715,775*	*9,763,422*	*9,941,706*	*10,301,013*
(j) Return on Invested Surplus	*4%*	*4%*	*4%*	*4%*	*4%*
(k) Return on Capital at Risk {(i) / (e) + (j)}	*126.5%*	*96.1%*	*67.2%*	*55.0%*	*44.0%*
(l) Marginal Return on Capital { [(i) - (i prior)] / [(j) - (j prior)]}		*25.1%*	*21.5%*	*8.4%*	*9.7%*

BENFIELD

What Factors Should Be Considered When Determining How Much Limit is Purchased?

- **Per Occurrence and Aggregate Limits**
- **Per Policy Limits Exposure**
- **Workers Compensation Catastrophe Limit**
  - Earthquake, Terrorism, and Industrial Accident Models
- **Contingency / Clash Limit**
  - Exposure to Extra Contractual Obligations
  - Exposure to Multiple Policy Accumulations
- **Cost of Reinsurance / Market Conditions**

BENFIELD

Top 5 Jury Verdicts in 2006

1. $216.7M: Medical Malpractice (Florida)

Navarro vs. Carrollwood Emergency Physicians

The largest verdict of 2006 went to a man who suffered severe brain damage after an unlicensed emergency physician's assistant misdiagnosed his stroke as a sinus infection. The case has subsequently settled.

2. $160M: Nursing Home Negligence (Texas)

Mendoza vs. Summit Care Corp.

In the 3rd largest nursing home verdict in US history, a Texas jury awarded $160M to the family of an elderly man who was severely beaten by his violent and mentally ill roommate. The case is on appeal.

3. $106M: Wrongful Death (California)

de Villers vs. Rossum

A toxicologist used drugs stolen from the state lab where she worked to poison her husband and make it look like a suicide. The victim's family sued to keep the defendant from profiting from her crimes through book contracts or movie rights. The verdict was reduced to $16M and is now on appeal.

4. $61M: Workplace Harassment (California)

Issa vs. Roadway Package Systems

Two Lebanese-American Federal Express drivers were the victims of ethnic discrimination and harassment at the company. The verdict was reduced to $12.4M.

5. $51M: Vioxx (Louisiana)

Barnett vs. Merck

In the 2nd largest Vioxx verdict to date, a federal jury in New Orleans awarded $51M to a 62-year-old retired FBI agent who suffered a heart attack after taking the painkiller Vioxx. The damages portion of the case will be retried.

SOURCE: www.lawyersusa.com

BENFIELD

What Should a Company Consider When Buying Clash Reinsurance?

- **Exposure to Private Passenger Type Losses**
- **Exposure to Industry Group Accumulations**
- **Significant Market Share in a State**
- **Claims Adjusting Culture**
- **Contract Language:** Which Losses are Intended to Be Covered?
- **Treatment of Loss Adjustment Expense**
- **Cost of Reinsurance**

BENFIELD

How Does TRIA Affect Casualty Reinsurance?

- **Covered Lines Include:**
  - Commercial Lines of Property & Casualty, Including Excess, Workers' Compensation, Surety, and D&O Liability

- **TRIA Coverage**
  - Foreign Terrorism Attacks Only
  - CNBR Covered If Covered By Underlying Policy
  - Event Trigger: $100M
  - Caps on Liability: $100B Annually
  - Individual Company Deductible: 20% (% of DEP of Prior Year)
  - Co-Payment: 85% Federal / 15% Insurer
  - TRIEA Expires on December 31, 2007 Unless Extended By Congress

What Should Be Expected From a Casualty Reinsurance Broker?

BENFIELD

What Should Be Expected From a Casualty Reinsurance Broker?

- **Advocacy**
  - Program Structure, Negotiations, Terms & Conditions
- **Transparency**
- **Market Breadth & Depth**
- **Ease of Administration**
- **Role in Original Business**
- **Broker Services**

BENFIELD

What Should Be Expected From a Casualty Reinsurance Broker?

- **Assessment of Risk and Developing Risk Distributions**
  - Catastrophe Modeling
  - Large Loss Distributions
  - Non-Cat Loss Volatility
  - Asset Risks
  - Other Risks
  - Correlations and Dependencies Identified
- **Comprehensive Stochastic Financial Model**
- **Risk Measures in Total and By Desired Sub-Categories**
  - By Source of Risk (UW, Cat, Asset)
  - By Region
  - By Line of Business
  - By Company or Business Unit
- **Capital Allocations**

Consolidated
Total Risk - 99% TVaR
($000)

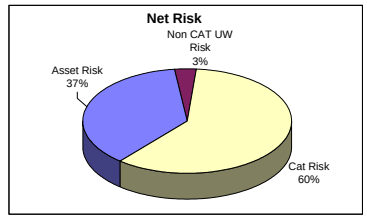
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
		Total Risk	Asset Risk	Non CAT UW Risk			CAT Risk			
Percentile	Trial	Operating Result	Investment Income	Reserves Yr End	Paid Current AY	Paid On Prior AY's	CAT Loss Gross	CAT Loss Net	CAT Loss Recoveries	CAT Reins Benefit
99.99	44151	(1,528,502)	255,319	245,788	419,507	192,501	2,432,675	1,725,175	707,500	610,397
99.90	12530	(568,699)	178,594	196,041	319,068	150,715	1,878,809	880,619	998,190	901,087
99.80	27949	(350,959)	(286,989)	232,592	419,186	133,993	165,862	119,163	46,699	(8,589)
99.70	41102	(285,747)	(46,955)	209,892	372,182	135,822	1,027,544	320,044	707,500	610,397
99.60	24196	(252,516)	(276,677)	215,763	363,110	176,838	67,831	67,831	-	(48,552)
99.50	26371	(230,310)	(281,585)	220,127	369,187	187,585	19,526	19,526	-	(48,552)
99.40	2843	(213,245)	(203,114)	214,404	387,422	131,297	224,131	112,099	112,032	50,871
99.30	28716	(200,740)	(10,299)	215,759	386,710	156,691	774,363	245,384	528,980	446,829
99.20	33041	(189,382)	(50,170)	232,146	408,031	165,412	240,051	172,734	67,317	10,175
99.10	30507	(180,348)	(142,525)	243,941	430,833	177,044	33,707	33,707	-	(48,552)
99.00	4699	(171,343)	(177,085)	241,357	426,498	152,351	21,753	21,753	-	(48,552)
97.50	18720	(104,458)	(179,973)	218,907	403,315	119,474	30,490	30,490	-	(48,552)
95.00	33162	(53,623)	(112,354)	243,268	374,751	153,873	17,078	17,078	-	(48,552)
Mean		214,380	184,994	223,582	392,017	158,708	55,673	42,769	12,904	(36,887)
99% TVaR		(347,408)	(22,097)	227,710	401,089	163,947	716,670	356,224	360,446	287,854
Risk		**561,787**	**207,091**	**4,128**	**9,072**	**5,239**	**660,998**	**313,455**	**347,542**	**324,740**

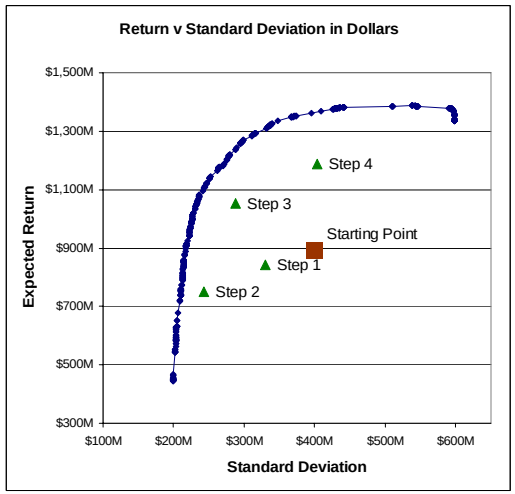
(TVaR Less Mean - Sign adjusted)

	Net Risk $	Net Risk %
(A) Asset Risk	207,091	36.86%
(B) Non CAT UW Risk	18,439	3.28%
(C) Cat Risk	336,257	59.85%
(D) Total Risk	561,787	100.00%

	Gross Risk	Gross Risk %
(A) Asset Risk	207,091	23.36%
(B) Non CAT UW Risk	18,439	2.08%
(C) Cat Risk	660,998	74.56%
(D) Total Risk	886,528	100.00%

Notes:
(A)=(2)
(B)=(3)+(4)+(5)
(C) Net =(7)+(8)-(9), Gross = (6)
(D)=(A)+(B)+(C)





BENFIELD

How Can a Primary Insurance Actuary Position Him or Herself to Get a Trip to London or Bermuda as Part of the Reinsurance Placement Process?

How Can a Primary Insurance Actuary Position Him or Herself to Get a Trip to London or Bermuda as Part of the R/I Placement Process?

- **Primary Company Actuaries Impact Reinsurance Terms and Conditions**
  - Rate Change Information
  - Interpreting Loss Development Triangles
  - Rating Implication of Underwriting and / or Claims Reserving Practices
  - Trends: Their View and Supporting Work of Such (Sev & Freq)
  - Policy Limit Shifts
  - Cost Effect of Expansion / Contraction
  - Perspective on the Environment: Tort Reform, etc.