



CARIBBEAN ACTUARIAL ASSOCIATION



Accredited as a Full Member  
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# 2012 Conference: “Connecting Theory With Practice”

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# Managing Profits Through the Underwriting Cycle

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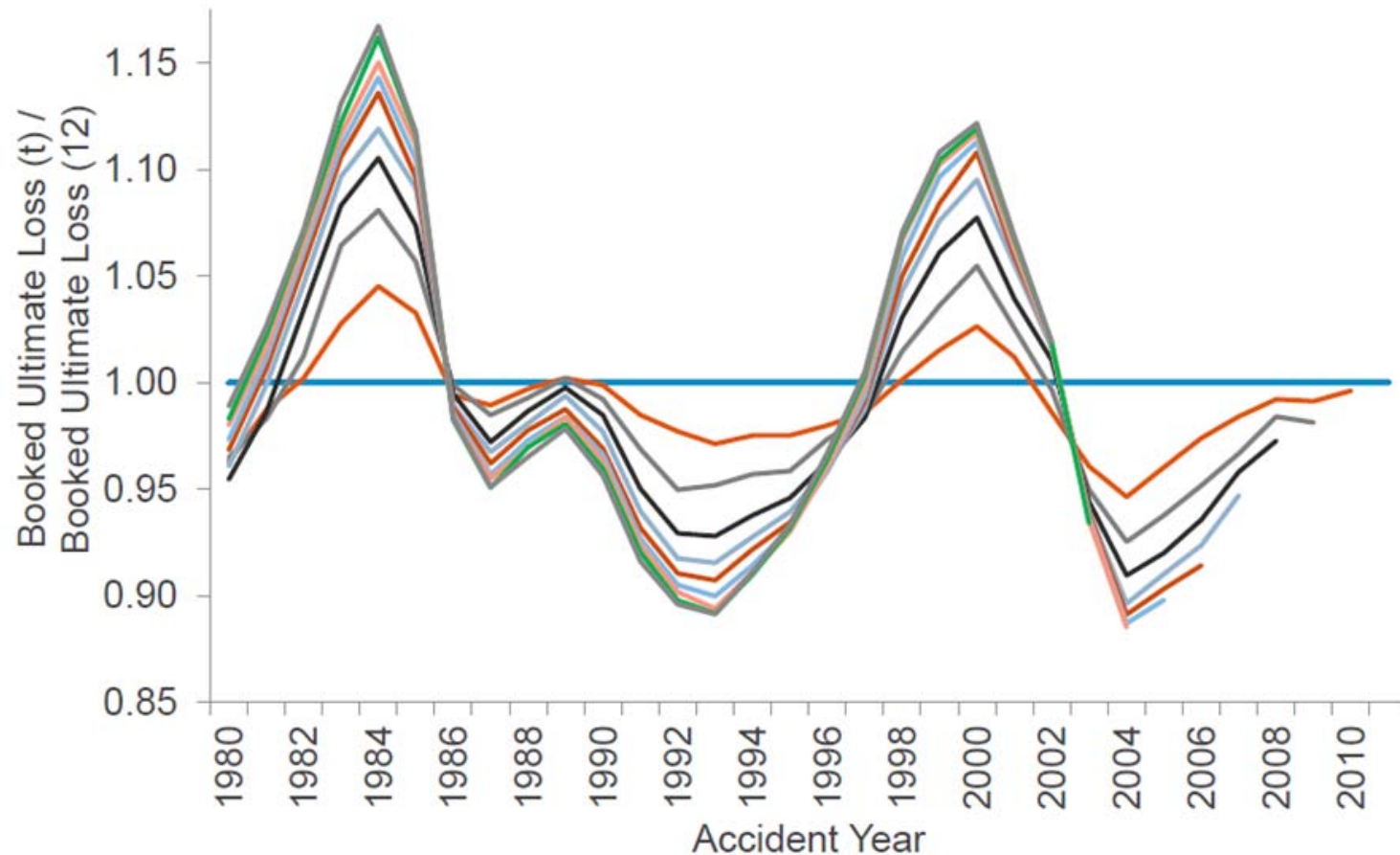
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- Impact of the Underwriting Cycle
  - Reserve Risk
  - Operating Results
- Key Drivers of Results
- Dynamic Financial Analysis
- Observations on Cycle Management

# Impact of the Underwriting Cycle

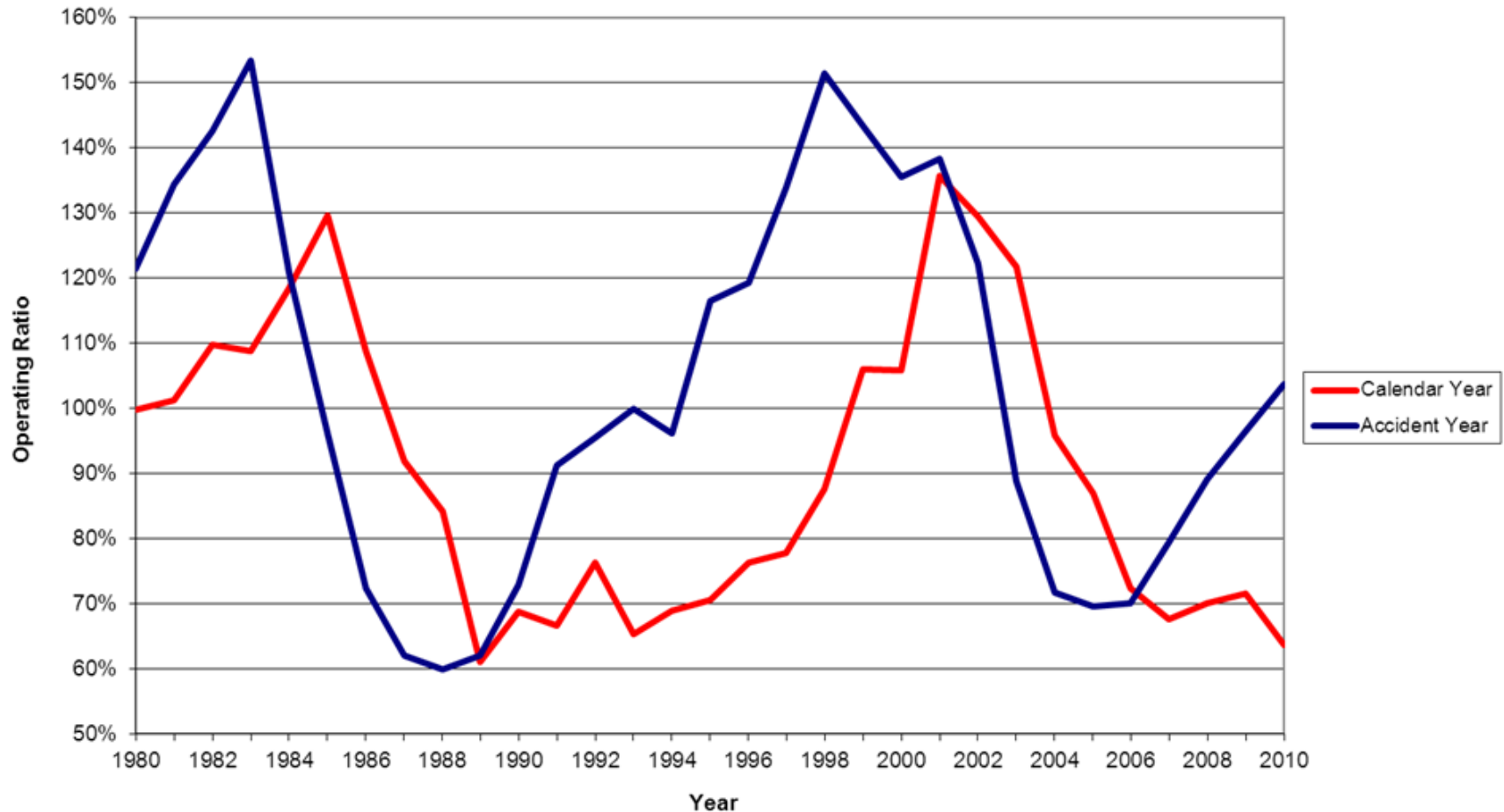


# Reserve Cycle



Sum of: Private Passenger Auto, Comm Auto Liab, CMP, Homeowners, Med Prof Liab, Other Liab, Products Liab, WC. Data to 12/2009 is from cleaned Schedule P database from Guy Carpenter & Risk Lighthouse (representing more than 95% of the industry), and updated for 12/2010 & 12/2011 financials using SNL and subject to change.

# Medical Malpractice Operating Ratio



**Source: AM Best Aaaereates & Averages**

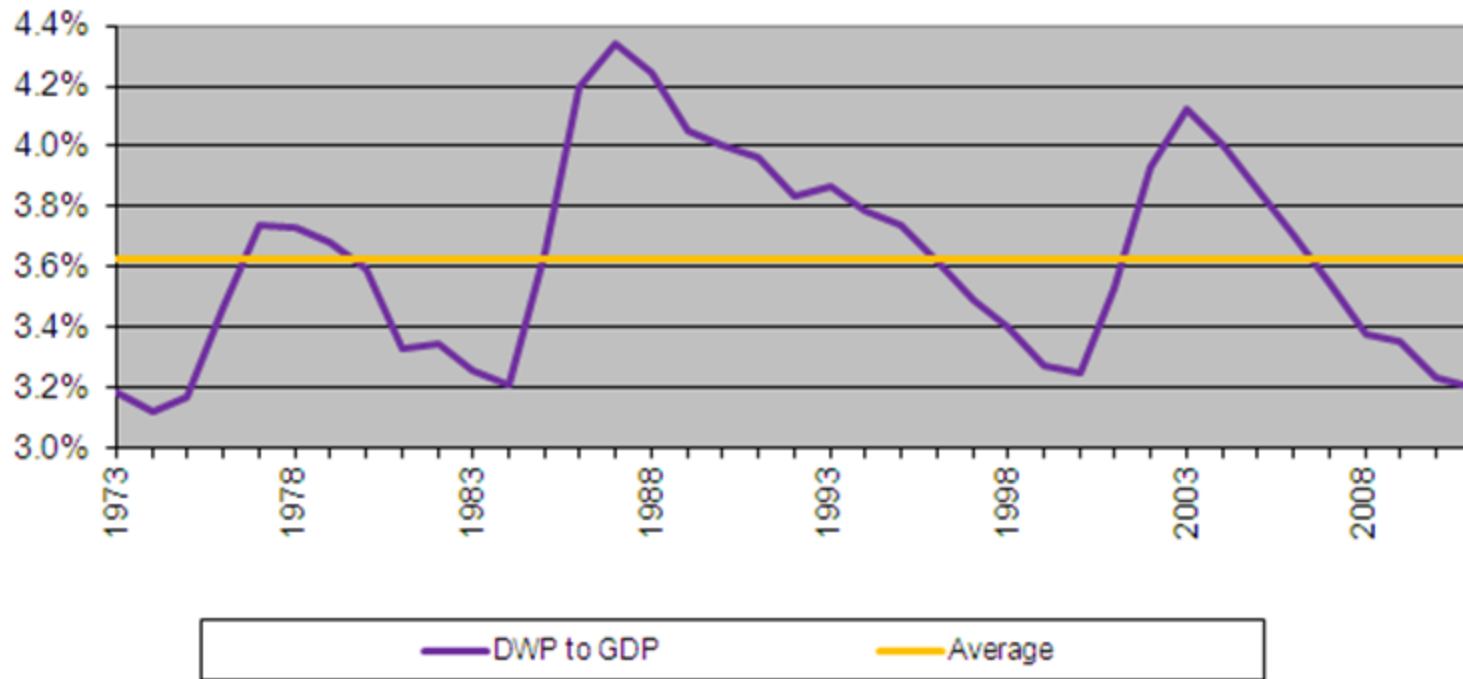
AY reported results including IBNR reported as of December 31, 2010 (or 9 years after AY, if earlier)

AY Estimates reflect investment yield of 0.5% above 5-Year US Treasury Rate

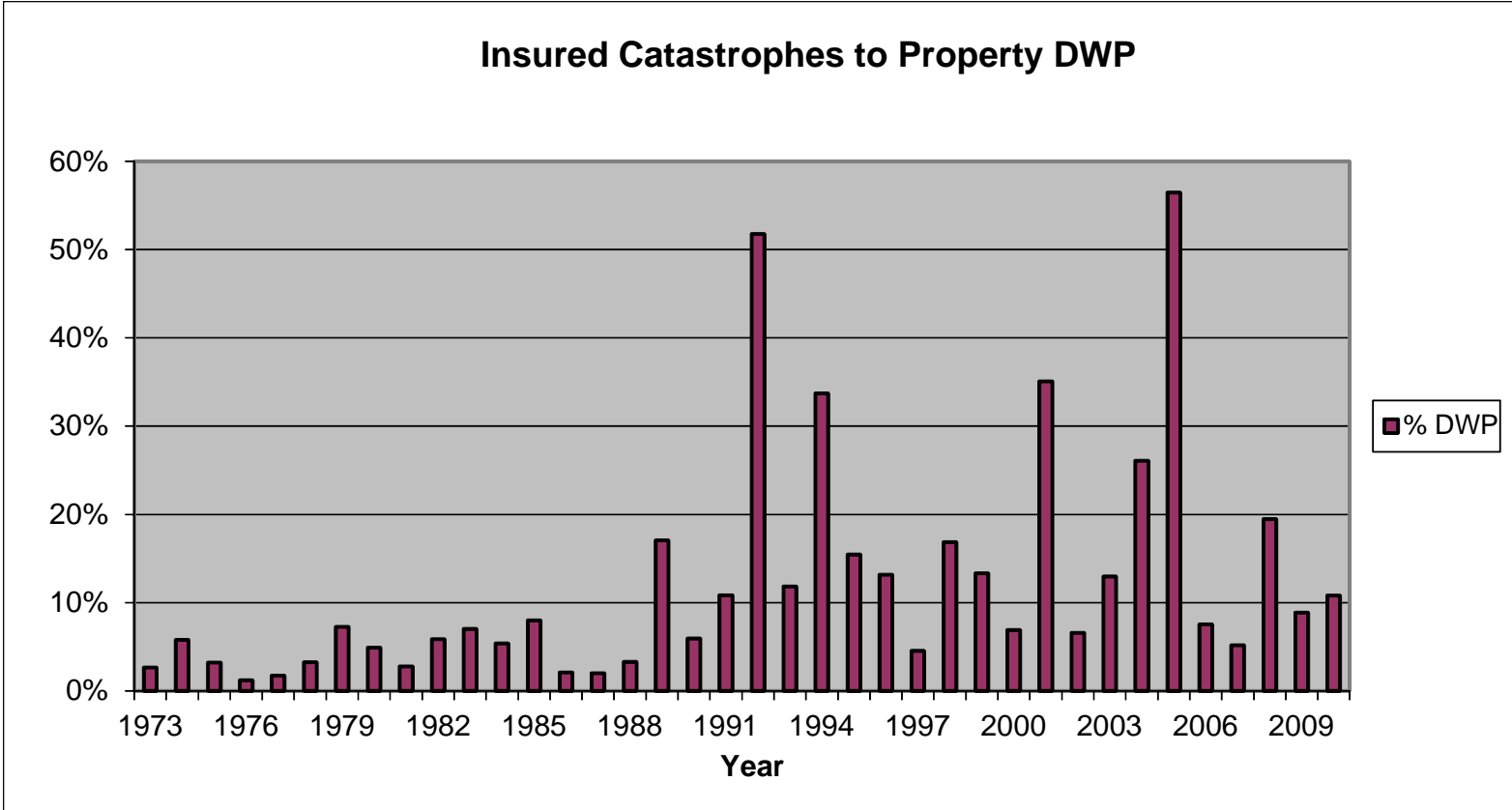


# Industry Rate Level Proxy: Ratio of Industry Direct WP to GDP

US INDUSTRY DIRECT WRITTEN PREMIUM TO GDP



### Insured Catastrophes to Property DWP

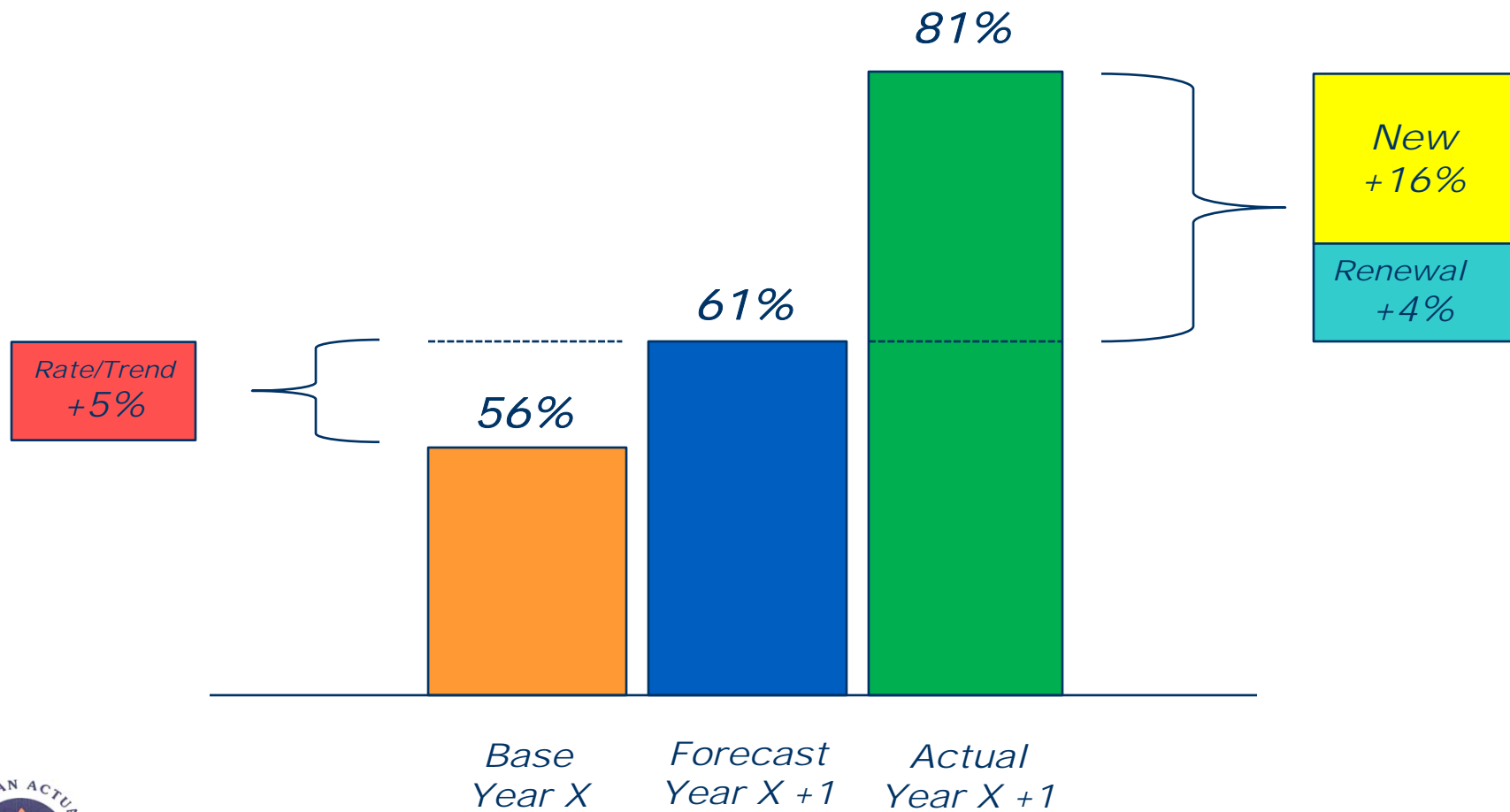




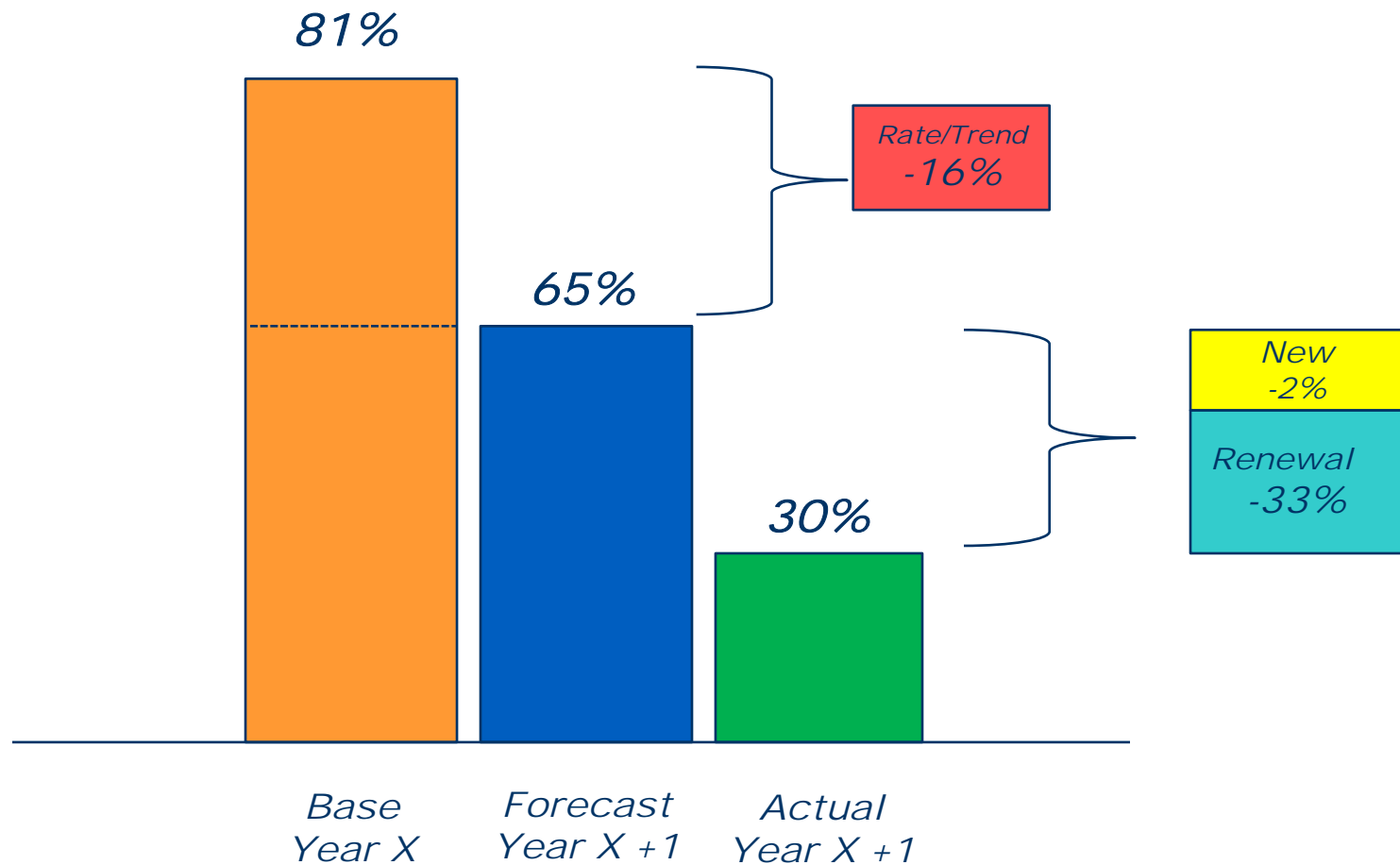
# Key Drivers of Results



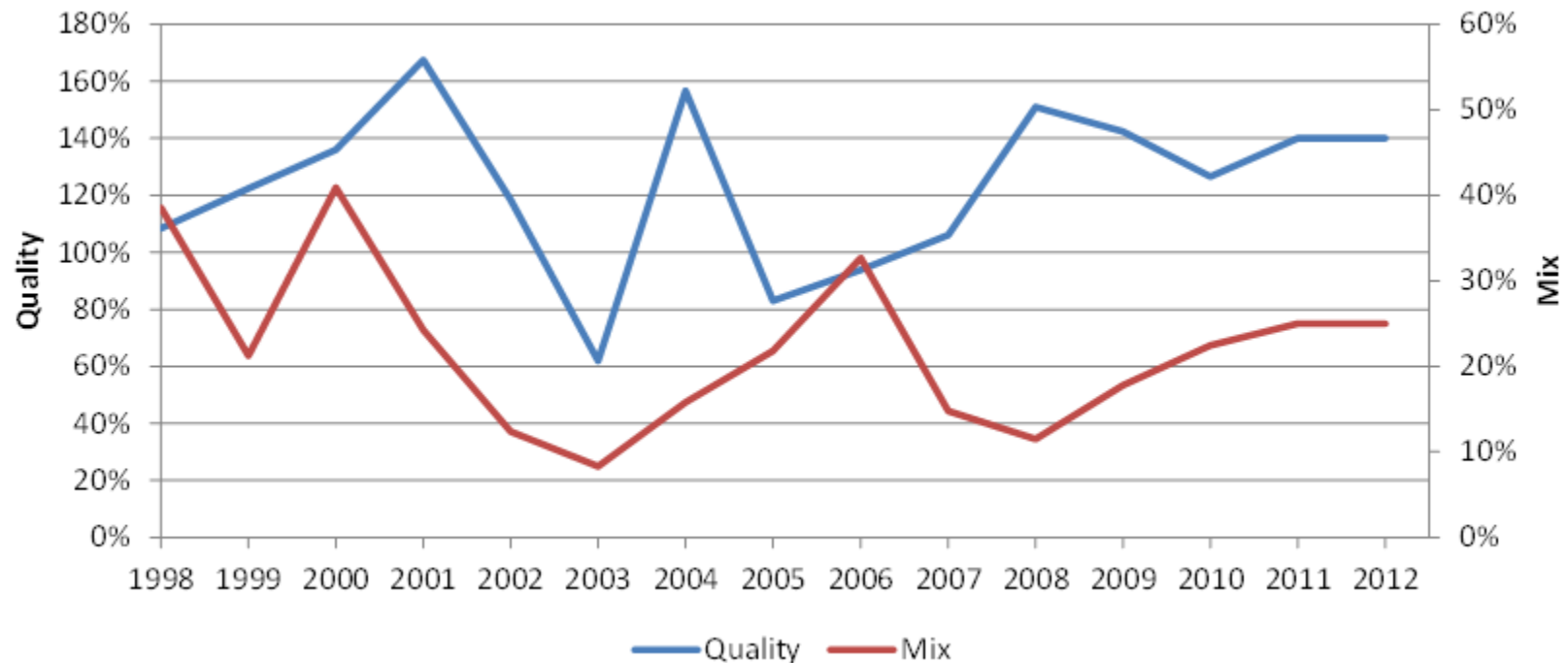
# Soft Market Loss Ratios



# Hard Market Loss Ratios



# New Business: Quality vs. Mix

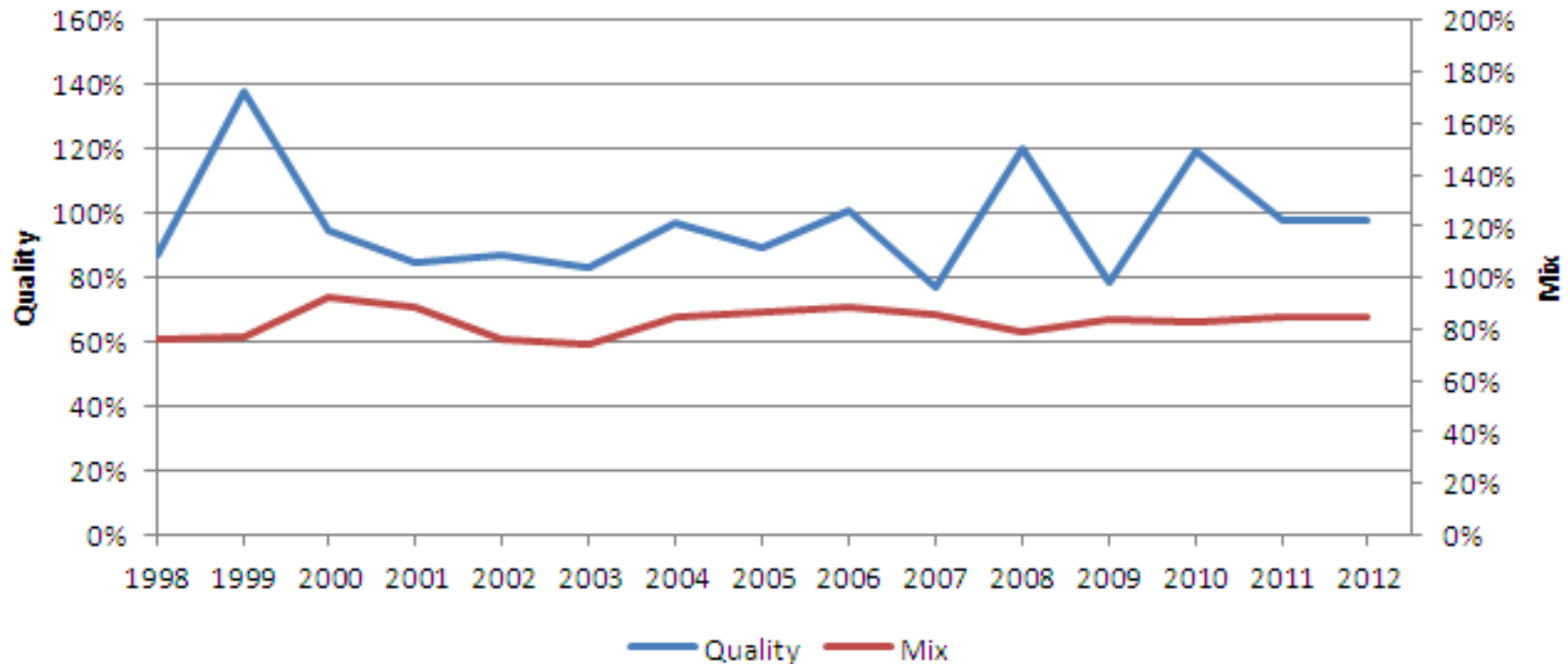


Quality metric:  $\text{New loss ratio} \div \text{renewal loss ratio}$  for the accident year

Mix metric: New business as a percent of total business



# Renewal Business: Quality vs. Mix



Quality metric:  $\text{Renewal loss ratio} \div \text{forecasted loss ratio (prior accident year loss ratio times loss trend)} \div \text{rate level trend}$

Mix metric:  $\text{Renewal business as a percent of total business in prior year} \div \text{rate level trend}$



# Impact of Key Drivers on Loss Ratio – Steady State

		<i>Premium</i>	<i>Loss</i>	<i>Loss Ratio</i>
1	Base Policy Year X	1,000	600	60%
	<u>Renewal</u>			
2	Retention (to Base Year)	80%	80%	
3	Rate Change / Loss Trend	105%	105%	
4	Underwriting Change		97.1%	
5	Renewal - Forecast Year	840	489	58.3%
	<u>New</u>			
6	New Exposure (to Base Year)	20%	20%	
7	Loss Ratio: New / Renewal Forecast Year		115%	115%
8	New - Forecast Year	210	141	67%
	<u>Total</u>			
9	Forecast Policy Year X +1	1,050	630	60%

Rows 1 to 3, 7: Assumptions

Row 4: Solve for Value that results in forecast ratio same as base year

Row 5: Premium = 1 x 2 x 3; Loss = 1 x 2 x 3 x 4

Row 8: Premium = 5 x 6 / 2; Loss = 5 x 6 / 2 x 7

Row 9: 5 + 8



# Impact of Key Drivers on Loss Ratio Soft Market

		<i>Premium</i>	<i>Loss</i>	<i>Loss Ratio</i>
1	Base Policy Year X	1,050	630	60%
	<u>Renewal</u>			
2	Retention (to Base Year)	<b>75%</b>	75%	
3	Rate Change / Loss Trend	<b>100%</b>	105%	
4	Underwriting Change		<b>98.5%</b>	
5	Renewal - Forecast Year	788	489	62.1%
	<u>New</u>			
6	New Exposure (to Base Year)	<b>30%</b>	30%	
7	Loss Ratio: New / Renewal Forecast Year		<b>125%</b>	125%
8	New - Forecast Year	315	244	77.6%
	<u>Total</u>			
9	Forecast Policy Year X + 1	1,103	733	66.5%
10	Trended On-Level Loss Ratio (Traditional Method)			63%

Changes in Assumptions from Steady State are highlighted



# Impact of Key Drivers on Loss Ratio Hard Market

		<i>Premium</i>	<i>Loss</i>	<i>Loss Ratio</i>
1	Base Policy Year X	1,490	156	77.6%
	<u>Renewal</u>			
2	Retention (to Base Year)	70%	70%	
3	Rate Change / Loss Trend	117%	105%	
4	Underwriting Change		87%	
5	Renewal - Forecast Year	1,220	739	60.6%
	<u>New</u>			
6	New Exposure (to Base Year)	25%	25%	
7	Loss Ratio: New / Renewal Forecast Year		96.5%	96.5%
8	New - Forecast Year	436	255	58.4%
	<u>Total</u>			
9	Forecast Policy Year X + 1	1,656	993	60.0%
10	Trended On-Level Loss Ratio (Traditional Method)			70%

Changes in Assumptions from Steady State are highlighted



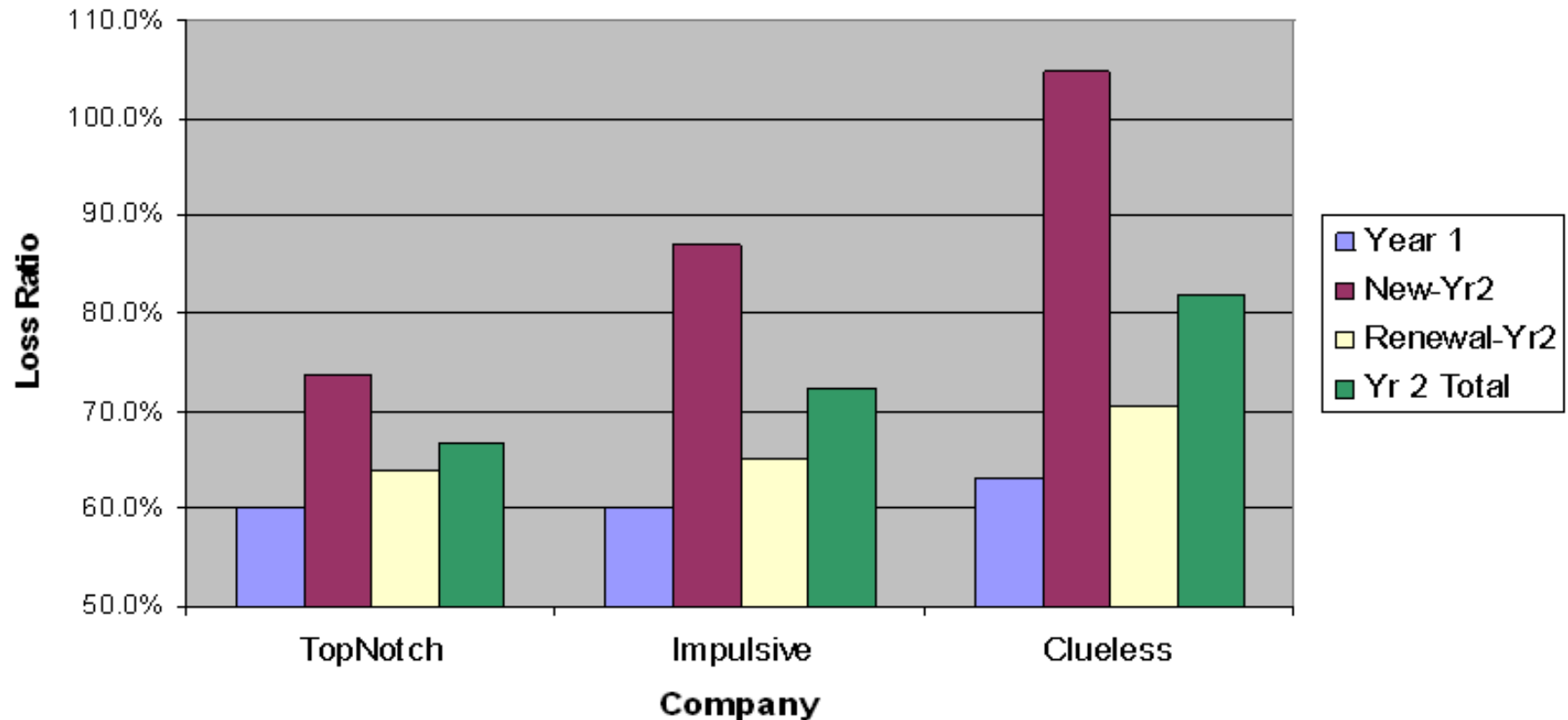


# Predict Future

## Impact of Competition on Loss Ratio

- Top Notch: Expected value price = Target (or Technical Price less 5%: Standard deviation of price = 15%
- Impulsive: EV = Target less 7.5%:  
Standard Deviation = 25%
- Clueless: EV = Target less 10%:  
Standard Deviation = 40%
- 60% of renewals shop price
- Move for 5% premium difference

# Winners Curse: Impact of Price Decrease by Company Discipline



# Key Drivers of Results

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- Loss and Expense Ratios
- Price
- Trend
- Renewal Underwriting – Retention Rate and Underwriting Improvement
- New Business – Mix (Share of total book) and Quality
- Other Factors to Consider

# Loss and Expense Ratios

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- Prior Year Loss Ratio
- Industry
- Peer Companies
- Relative Historical Performance Versus Peers and Industry

# Measure All Aspects of Price

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- Base Rates, Individual Risk Rating
- Tiers – Especially if New Business Added Does Not Match Discount
- Terms, Conditions, Limits & Retentions
- Changes in Classification, Mono-line to Multi-line with big discount
- Industry Aggregate Trends

# Trend

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- Frequency, Severity and Distribution by Size of Loss
- Impact of Limits and Underwriting Changes
- Impact of New Business

# Renewal Underwriting – Retention and Quality

- Impact of Company Action Versus Lost to Competition
- Measure Change in Loss Ratio From Price, Trend, Other
- Split Other into Change in Client Retention, Terms, Limit, Conditions, U/W Action, Unexplained
- Measure impact of every underwriting action
- Monitor Number and “Quality” of Competitors Bidding – Winner’s Curse
- Develop codes to track claims for most significant changes

# New Business – Mix and Quality

- Track relative mix versus renewal. Track across cycles.
- Track relative loss ratio to renewal. Track across cycles.
- Track number and quality of competitors - Winner's Curse
- Track previous underwriter and price, if possible
- Audit new business and track over time by type:
  - New to company with prior experience (line/class/state)
  - New to company – no prior company experience
  - New to industry – risk not previously underwritten
    - Credit Default Swaps; Residual Value; Higher D&O Limits;
- Return from alternative market: e.g. drop down retentions





# Underwriting Process

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- Feedback loop on underwriters ability to estimate ultimate combined ratio.
- Review Changing Retentions, Terms, Conditions and Limits
- Review New Business
- Review explicit and implicit incentives

# Claims Process

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- Feedback loop to U/W and Actuarial
- Measure changing case reserve adequacy and speed of payment in audit.
- Interpretation of claim audit results in pricing analysis.
- Talk to run-off staff – what terms might help future claims settlement
- Identify implicit/explicit incentives to set more or less adequate reserves
- **DO NOT CHANGE RESERVE SETTING APPROACH UNDER ANY CIRCUMSTANCES! (WELL, ALMOST ANY)**



# Other Factors to Consider

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- Loss Development Cycle - Payments and Reserves
- Impact of Competitor's Case Reserve Adequacy on Pricing
- Investment Income Cycle
- Commission and Brokerage, Including Profit-Sharing
- Reinsurance
- Market Segmentation: Relative Success of Predictive Modeling in Segmenting Profitable Business
- Customer Response

# Dynamic Financial Analysis



# Standard Approach

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- Starting Balance Sheet
- Output: Expected and Distribution of Equity in Five Years
- Input: Expected Value and Distribution of:
  - Premiums
  - Loss Ratio
  - Investment Income
  - Loss Payment Pattern
  - Adequacy of starting reserves
  - Reinsurance program
  - Expenses
  - Taxes

# With Mix and Quality Considerations

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- Include Assumptions on New and Renewal, Mix and Quality
- Include Assumptions on Number and Nature of Competitors
- Include Assumptions on Industry Results and Relative Performance of Company to Industry

# Observations on Cycle Management



# Strategic Message/Business Judgment/Structure

- CEO Message:
  - Mix of growth and profit? Explicit? Implicit?
  - Message down to all levels?
  - Do you (underwriter) hear what I (actuary) hear?
- Incentive structure:
  - Mixture of short-term versus long-term perspective
  - Consistent with riskiness of business written
  - Actuary's assessment of results
- Feedback loops:
  - CEO assessment of underwriter and actuary

“Last company” standing: brokers love us when the market turns





# Process/Human Element

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- Beware “opportunistic” buyers
- Completeness of information
- Role of the actuary in the underwriting process
  - Independent versus part of U/W team
  - How does actuary enhance/undermine influence on decisions
  - Attend U/W or claims audits
- Reinsurance or large account pricing: who can bind?
- Communication of differing viewpoints
- Does underwriter value market relationship more than long-term success at his/her company?

# Technical Competency / Learning From the Past

- Actuary's Role:
  - Potential sources of bias in actuarial analysis across cycles
  - What operational changes should the actuary "accept"
  - What did actuaries do right/wrong in last soft market?
  - Did actuary identify business opportunities in last hard market?
  - Does actuary sell viewpoint in way most likely to impact decision maker?
- Maximize the impact of U/W and claim audits
- Toxic mix of large growth and fighting "meritless" claims
- Does (reinsurance) actuary understand insurer's business plan and read full submission?



# Technical Competency / Learning From the Past

## Reinsurance

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- Quality of price monitors in soft markets
- Reinsurer: how to judge new business of insurer?
- What's your favorite 1000% loss ratio example?

# Things That Go Wrong in Combination

- Emphasis on top-line growth
- Declining price in market
- Lower standards on renewal and lower retention ratios
- Higher mix of new business and unknown new business
- Changing industry case reserve adequacy and claims closure rate
- Changes in classifications to get lower premium to capture account
- Accepting previously excluded business (e.g. E&S business)
- Loosening terms and conditions
- Increasing limits at low price
- Putting complex business, e.g. nursing home, into umbrella program

# Things That Go Wrong in Combination (continued)

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- Plaintiff's bar targeting of new, higher limits
- Expanding MGA and TPA business
- Focus on fighting "meritless" claims, with minimal success.
- Expanding length of policy terms
- Misstating price changes in price monitors
- Lowering of retentions (self-insured, insurer, reinsurer, retrocessionaire)
- Changes in profit-sharing
- Failure of data to be shared effectively: primary, broker, reinsurer; underwriter, actuary, claims, financial, executive.
- Cycle in Benchmark Rates (in US from ISO and NCCI)



# Use of Predictive Modeling

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- Identify Credible Rating Relationships for Segments Not Currently Identified or Not Properly Quantified
- Improve rating precision, more refined segments
- Model Works Best in Conjunction with Underwriting Judgments
- Mitigate Pricing Distortions to reduce Winner's Curse
- Commercial Lines use expanding
- Implications of expanding into new lines, classes or territories