

Value-Added Reserving

2007 Casualty Loss Reserve Seminar

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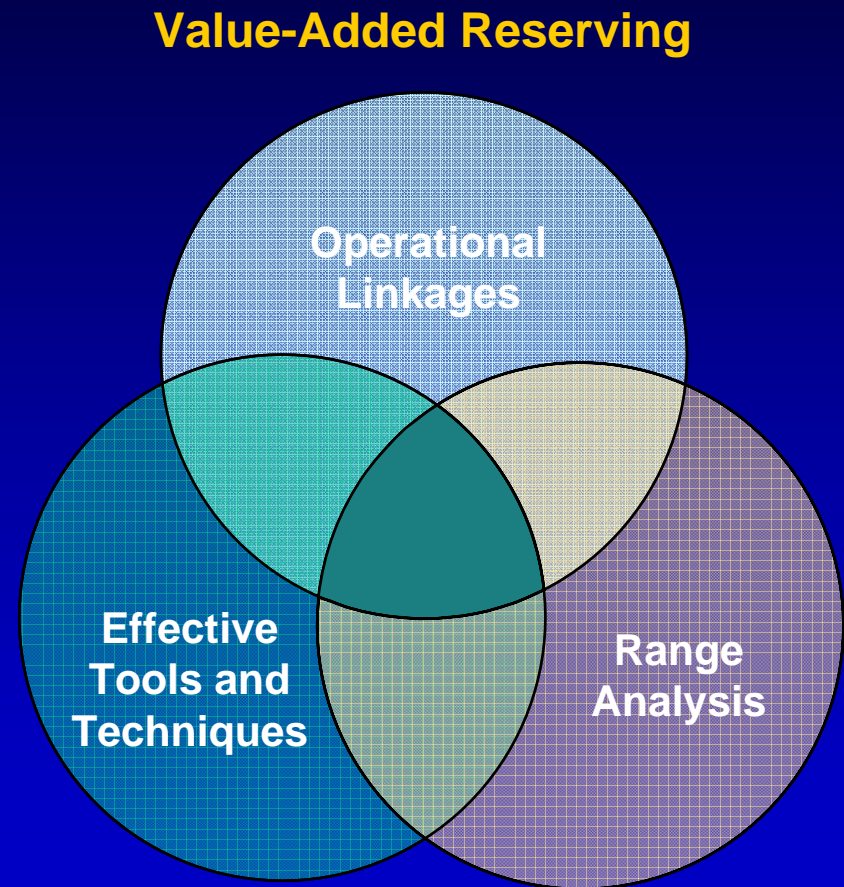
September 10, 2007

Topics of discussion

- What is Value-Added Reserving?
- Operational linkages
- Information flow
 - Operating areas — > reserving actuary
= better estimates
 - Reserving actuary — > operating areas
= manage business issues
- Claim, underwriting and reinsurance examples

Three major aspects of Value-Added Reserving

- Significant, two-way operational focus
- The best tools and techniques
 - Actuarial methods
 - Benchmarking
 - Effective deliverables
- Evaluation and quantification of reserve uncertainty



Loss reserve analysis is affected by most of a company's functional areas

- The reserving exercise provides a unique vantage point



Value-Added Reserving capitalizes on these connections by adding operational components to the reserve analysis

Primary Purpose

- Produce better, more reliable loss estimates
 - Identify changes in the company's operation
 - Reflect the effects of the changes in the ultimate loss estimates

Secondary Purpose

- Identify and communicate operational issues to:
 - Improve the company's bottom line
 - Enable the company to plan and manage growth

- Main focus is on claim, underwriting/pricing and reinsurance
- Other opportunities exist as well

Claim review explores interaction of claim handling and reserve estimates

- Claim handling practices
 - Case reserving approach
 - Claim settlement process
- Claim operations and claim handler assignments
 - Management organization
 - Recent file reassignments
 - Utilization of outside resources
- Vendor interactions and technology
- External factors
 - Exit or enter markets
 - Legislative or judicial



**Much more than a loss reserve review —
robust consideration of claims**

Underwriting review provides powerful insights into the effectiveness of underwriting programs

- Organization/management structure
- Book of business
 - Target markets
 - Changes in book or mix
- Underwriting
 - Acceptance guidelines
 - Exposures, coverage extensions
 - Impact of legal/regulatory changes
- Pricing
 - Interaction between underwriting and actuarial
 - Use of inference modeling
 - Price monitoring systems



**Much more than a loss reserve review —
robust consideration of underwriting**

It is good practice to document the operational issues through claim and underwriting histories

Claim (or Underwriting) Log

Nature of change	Dates initiated and completed	Reason for change	Details of change	Target effect and actuarial impact	Observed effects	Lines of business affected	Percentage of business affected

- The types of changes to track include:

Claim

- Case reserving
- Settlement rates
- Claim reporting procedures
- Organization/management
- New vendors and systems
- New markets/exposures
- Legislative/judicial

Underwriting

- Organization/management
- Target markets
- Acceptance guidelines
- Exposures
- Regulatory
- Pricing
- Price monitoring

The logs become a valuable reference tool for both the reserving actuary and the operational areas

- Living documents that will be updated at least annually
- Excellent “cheat sheet” for the reserving actuary as the analysis proceeds
- Good list of issues to “check up on” during subsequent analyses
- Protector of institutional knowledge
- Documents the expected effects of events at the time
 - Allows a more unbiased reflection of actual effects

Claim log example

Claim Log

Nature of change	Dates initiated and completed	Reason for change	Details of change	Target effects
Post acquisition integration	2Q 2004/ 4Q 2005	Acquisition of NY Sample Ins. Co. completed May 2004	NY Sample is small multi-line carrier writing business in NY, PA, NJ, with significant overlap in operations with us	Goal to create integrated claim organization, providing excellent service

Potential actuarial impact	Observed operational effects	Observed actuarial effects	Lines of business affected	Percentage of business affected
Look for disruption in historical reserving & payment patterns	Claim mgmt. reports no slow down in reporting/intake activity, and suspect a short term slowdown in case reserving & payment activity, corrected by 2Q2005	Incurred & paid triangles indicate disruption of case reserving & payment activity in 2004. NY Sample had turnover in Claims when merger announced.	All P/C lines, but the change on the diagonal is more pronounced for liability	100%

Underwriting log example

Underwriting Log

Nature of change	Dates initiated and completed	Reason for change	Details of change	Target effects
Strengthen control of the underwriting process performed by a strategic partner	2006/ ongoing	Control profitability	Increase in-house U/W expertise, monitor U/W process more closely, strengthen referral guidelines	Refine/expand U/W & monitoring tools to manage book, more consistent U/W and pricing

Potential actuarial impact	Observed operational effects	Observed actuarial effects	Lines of business affected	Percentage of business affected
Identification of trends in mix of business and pricing, to allow adjustments in analysis for emerging trends	Implemented tracking of class/hazard, exposure, pricing mods; volume increased due to higher acceptance of referrals	Identified shifts by class affecting expected size of loss and loss development, observed changes in average pricing mods	Workers comp	100%

Reinsurance review focuses on effects on ceded and net trends and risks

- Reinsurance program overview
 - Treaty
 - Facultative
 - Inter-company
- Potential effects on the actuarial analysis
 - Mapping of reinsurance categories to reserving lines
 - Terms and conditions
 - Loss-sensitive aspects
 - Commutations or loss portfolio transfers
- Other
 - Collectibility concerns or material disputes
 - Deposit accounting treatment



**Much more than a loss reserve review —
robust consideration of reinsurance**

Understanding the ceded reinsurance program history is a necessary component of net reserve analysis

(Portion of) Ceded Reinsurance History

Time Period	Retained Exposure per Claim	Layer with Retained Exposure
1995 and prior	30,000	30,000
1996 – 1997	60% of 50,000	50,000
1/1/98 – 3/31/98	50,000	
4/1/98 – 12/31/98	2.5%	Gross
1/1/99 – 8/31/01	0.5%	
9/1/01 – 12/31/01	10%	
1/1/02 – 6/30/02	50% of 200,000	200,000
7/1/02 – 6/30/03	20% of 500,000	500,000
7/1/03 – 6/30/05	15% of 500,000	
7/1/05 – 6/30/06	20% of 700,000	700,000
7/1/06 – 12/31/06	25% of 700,000	

↑
Affects ceded percentages and expected net loss ratios

↑
Affects net loss development patterns

The flip side of Value-Added Reserving is that the reserve analysis gives insights into the company's operational effectiveness

- Claim

- Estimated trends in case reserves and settlements may indicate sub-optimal claim performance

- Underwriting

- Loss ratio trends may indicate sub-optimal risk selection or marketing

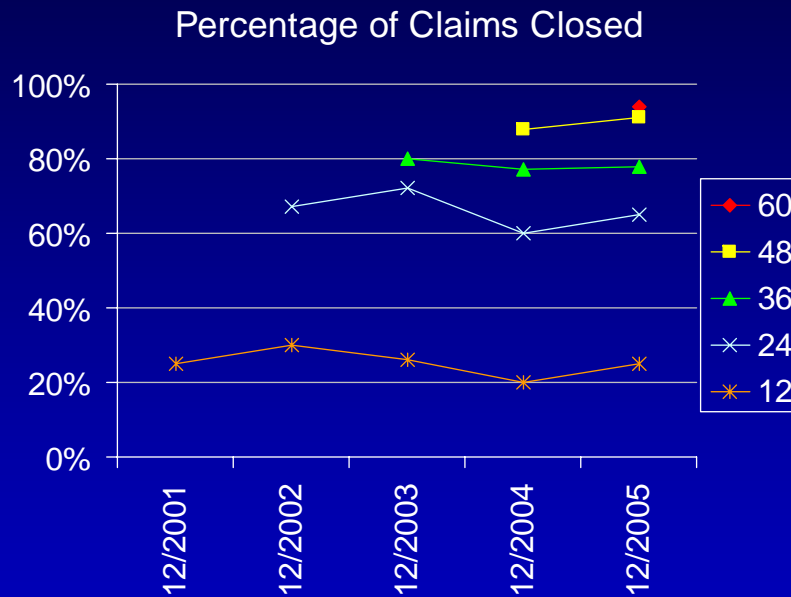
- Reinsurance

- Gross versus net versus ceded results may indicate sub-optimal reinsurance program

The next several slides provide hypothetical reserve study findings that may point to operational issues

Hypothetical: There are signs of a slowdown of both claim closures and loss payments

Auto Bodily Injury



Closure rates suggest a slowdown in 2004. There is some evidence of catch-up in 2005, but not back to 2003 levels.



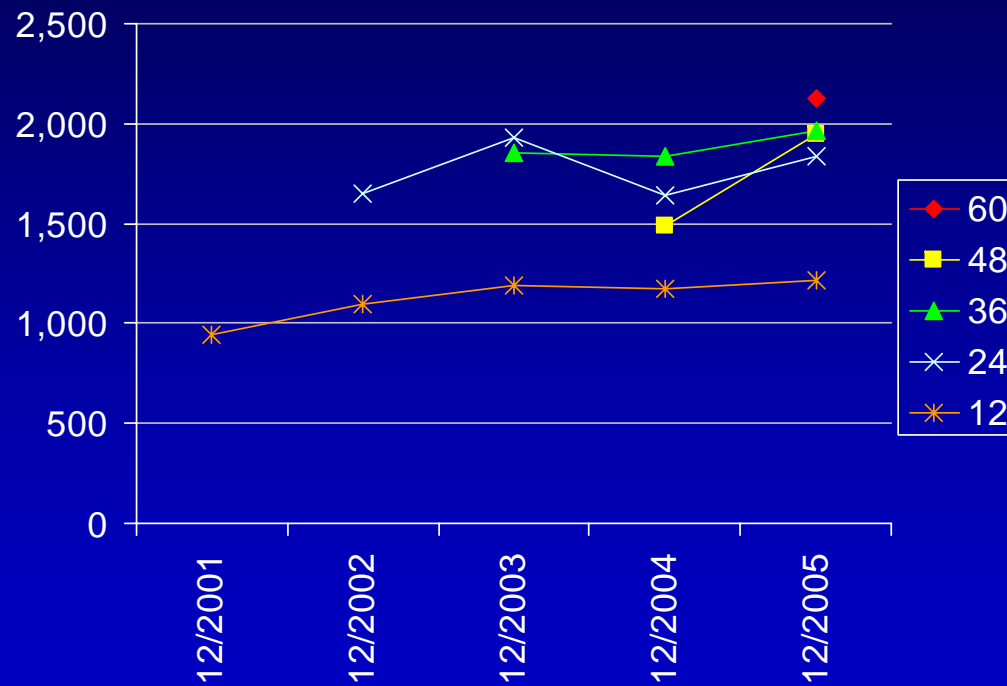
Paid to reported ratios suggest a slowdown in payments as well, but not to the extent of closure rates.

Should check if case reserves are down as well.

Hypothetical: Average case reserves also appear to have dipped at year-end 2004

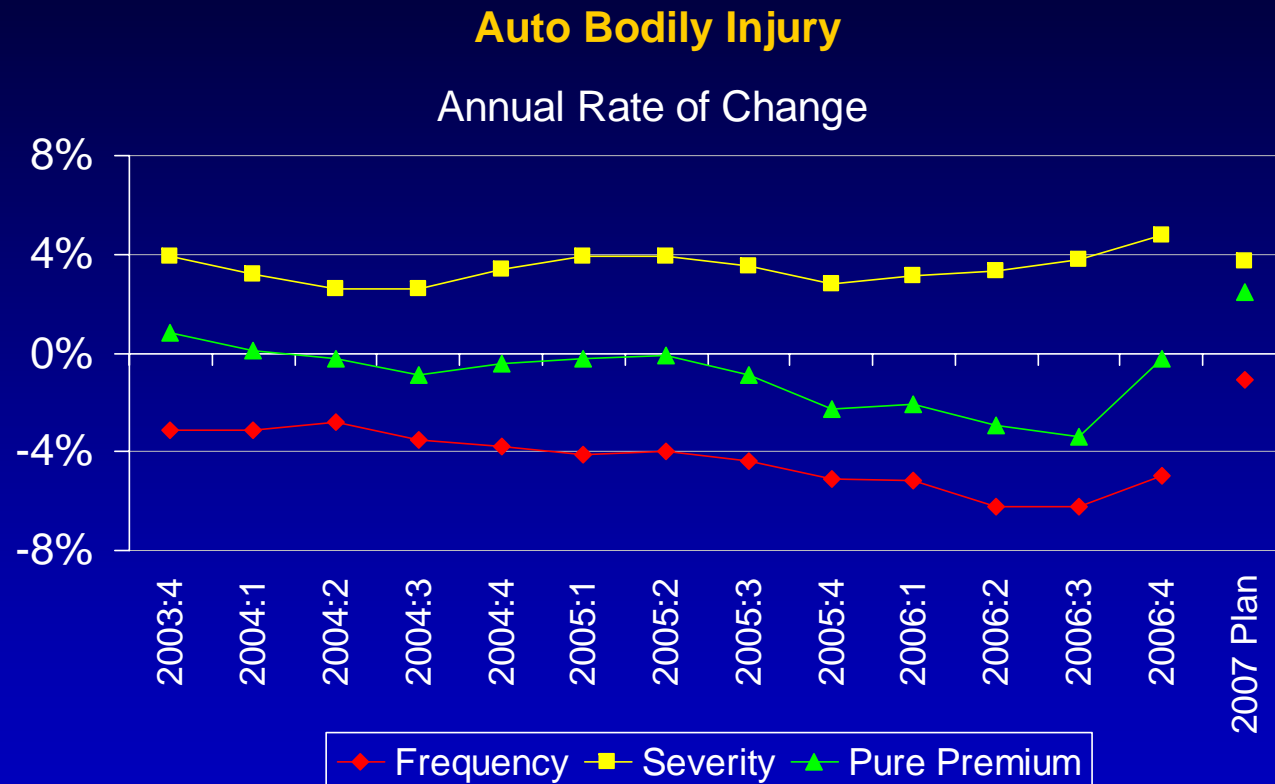
Auto Bodily Injury

Average Case Reserve



Average case reserves did not increase as expected in 2004, and are probably still not back to expected level at 2005

Hypothetical: Planned loss cost trend is pessimistic versus historical rates of change

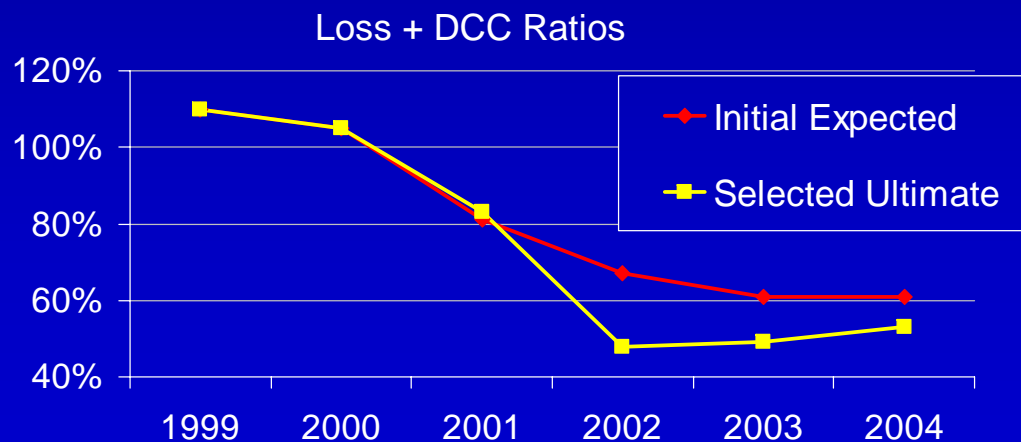


While the planned severity trend is consistent with recent history, planned frequency trend reflects a flattening. Is this intentional?

Hypothetical: Selected loss ratios from reserving analysis indicate significant unexplained improvements

Loss + DCC Ratio Analysis – Other Liability

Accident Year	Earned Price Change	Loss Cost Change	Expected Underwriting Improvement	Expected Change in Loss + DCC Ratio	Initial Expected Loss + DCC Ratio	Selected Ultimate Loss + DCC Ratio	Difference Between Initial and Selected
1999					110%	110%	0%
2000					105%	105%	0%
2001	24.6%	3.9%	-3.5%	-19.5%	81%	83%	2%
2002	24.1%	3.9%	-0.8%	-17.0%	67%	48%	-19%
2003	13.5%	3.9%	-0.7%	-9.1%	61%	49%	-12%
2004	3.7%	3.9%	0.0%	0.2%	61%	53%	-8%



Achieved loss ratios much better than expected, implying that assumptions need refinement

Hypothetical: Planned loss ratio is better than expected relative to past company and industry trends

Workers Compensation Accident Year Loss and DCC Ratios

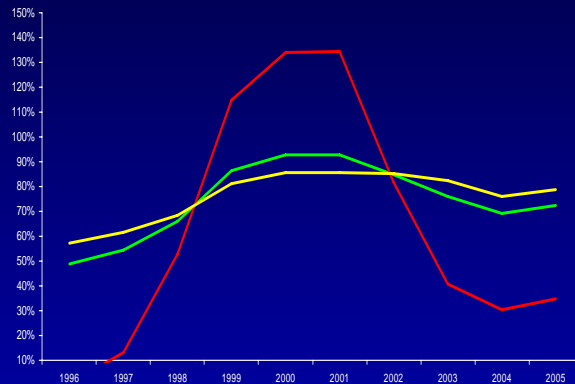


Price and loss cost assumptions do not explain improvement. Investigation found a planned 9 point decrease due to various "initiatives".

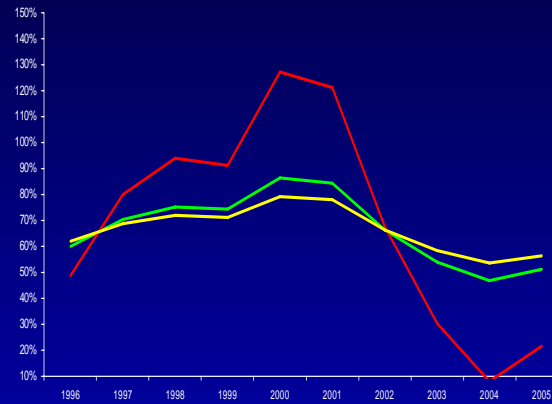
Price - Industry	+12	+16	+14	+5	-2	-3	-4
Price - Company							+3
Loss Cost - Industry	-1	-3	+3	-3	+3	+2	+2
Loss Cost - Company							+3

Hypothetical: Gross, net and ceded loss ratios provide insights into the reinsurance program

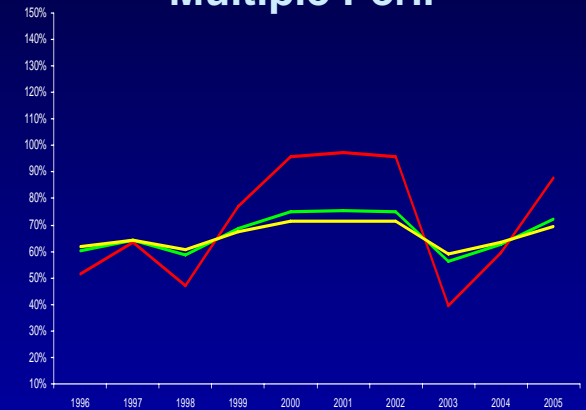
Workers Compensation
Ultimate Loss Ratio



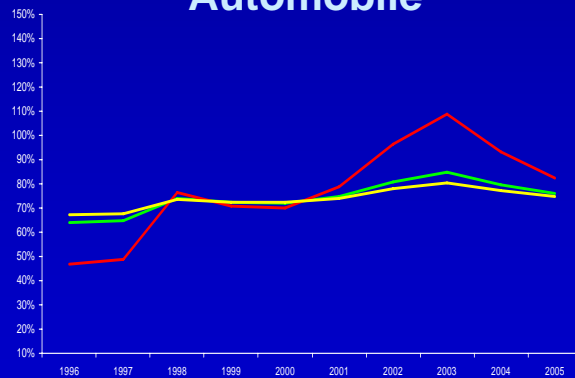
General Liability



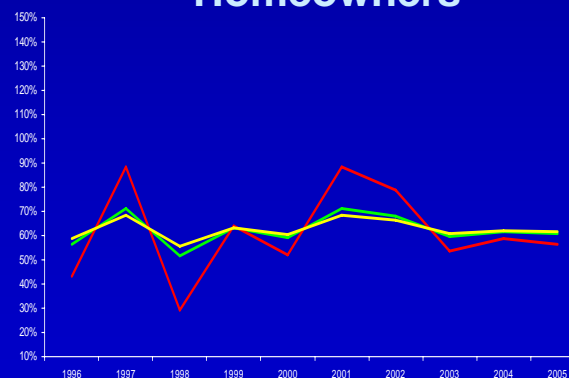
Commercial Multiple Peril



Automobile



Homeowners



— Gross — Net — Ceded

Observations

- For WC and GL, ceded loss ratios do not track gross and net, cycle is intensified
- Additional analysis required for firm conclusions
- Reinsurance structure, terms, price

Communicating findings back to the operational areas provides insights

- Generates more dialogue and analysis
- Challenges assumptions and beliefs of operating management
- Leads to corrective measures
- Increases the reserving actuary's understanding
- Leads to updates to claim and underwriting logs
- Leads to improved approaches, assumptions, and conclusions for the reserving actuary

ENJOY LUNCH!