

STRATEGIC STUDY SERIES

Property-Casualty Loss  
Reserves

*Strong, But Beginning to Fade?*  
2007

# Property-Casualty Loss Reserves *Strong, Stronger, But... ?*

**CAS Annual Meeting**  
November 2007

## 2006 Industry reserve strength

Based on a review of payment and loss development patterns, from industry aggregated Schedule P data for 2006– all Casualty Lines:

### Historical Reserve Redundancy/(Deficiency) as a % of Reserves

	2001	2002	2003	2004	2006
Private Passenger Auto Liability/Medical	(2.0%)	0.8%	3.7%	3.5%	2.2%
Homeowners/Farmowners	(10.9%)	(3.5%)	3.6%	0.5%	4.8%
Workers' Compensation	(6.9%)	(6.4%)	(4.0%)	(10.7%)	4.6%
Commercial Multiperil	(22.7%)	(13.2%)	(4.0%)	(3.9%)	(1.4%)
Other Liability (Occurrence)	(28.4%)	(16.1%)	(6.6%)	(9.6%)	3.6%
Other Liability (Claims-Made)	(10.2%)	(0.7%)	(4.8%)	(2.2%)	13.1%
Commercial Auto/Truck Liability/Medical	(19.8%)	(11.2%)	1.2%	2.1%	6.0%
Medical Malpractice (Occurrence)	(40.5%)	(22.8%)	(10.0%)	(6.6%)	10.5%
Medical Malpractice (Claims-Made)	(19.7%)	(24.8%)	(5.7%)	3.8%	26.6%
<b>Total Study Lines</b>	<b>(13.1%)</b>	<b>(8.1%)</b>	<b>(2.4%)</b>	<b>(4.3%)</b>	<b>5.3%</b>

Source: Conning Research & Consulting

Note: Review of 2004 data first included a more explicit review of longer-tailed reserves.

## But.....

- Most of “Redundancy” is still very, very green
- Sustainability of recent reform legislation not fully tested
- Losses are increasing
- Risk Factors are increasing–  
Inflation, Medical Inflation, correlations, longevity–  
and loss of smaller, more frequent claims to retentions
- Catastrophe exposures are growing, testing Model Risk–  
The next wave of Viral Litigation? Loss of Arbitration?
- Credibility for most companies is limited and volatile

# Industry Reserve Change 2006

## Property-Casualty Industry Loss Reserve Reconciliation, Total All Lines

(\$ in millions)

*In spite of reserve releases in 2006 amounting to more than \$7 billion, mostly from accident years 2003-05 ...*

*Accident years before 1997 showed almost \$4 billion of continued strengthening.*

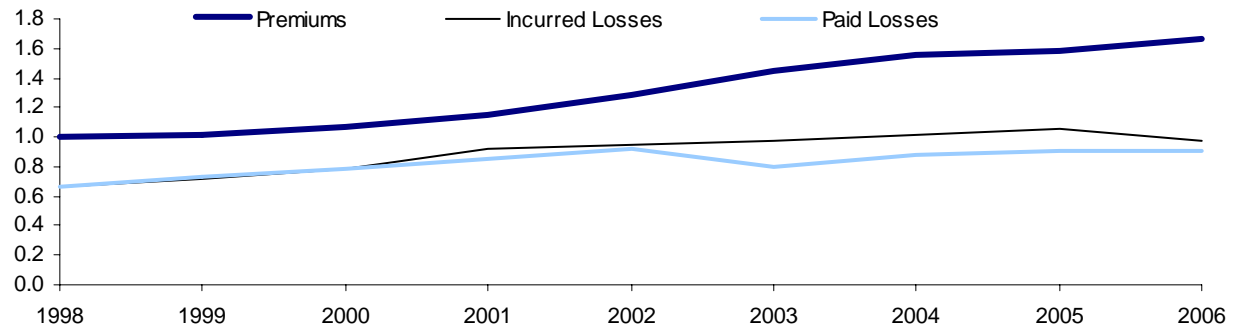
Accident Year	Incurred Losses		Paid Losses		Reserves		Net Change Including Paid Losses
	At Year-End 2005	At Year-End 2006	At Year-End 2006	2006 Calendar-Year Change	At Year-End 2006	2006 Calendar-Year Change	
Prior	\$257,492	\$261,464	\$188,434	\$8,226	\$73,031	(\$4,253)	<b>\$3,972</b>
1997	179,200	179,554	172,992	804	6,562	(450)	<b>353</b>
1998	199,291	199,693	190,617	1,578	9,076	(1,176)	<b>402</b>
1999	210,586	211,736	200,013	2,218	11,724	(1,068)	<b>1,150</b>
2000	226,659	228,118	212,023	3,907	16,095	(2,448)	<b>1,459</b>
2001	240,944	242,095	221,020	4,901	21,075	(3,750)	<b>1,151</b>
2002	230,369	231,384	204,895	10,453	26,488	(9,438)	<b>1,015</b>
2003	231,903	230,496	192,628	15,034	37,868	(16,442)	<b>(1,407)</b>
2004	246,072	241,301	183,275	22,057	58,026	(26,828)	<b>(4,771)</b>
2005	277,818	267,476	175,876	58,461	91,600	(68,803)	<b>(10,342)</b>
<b>Subtotal 1997-2005</b>	<b>\$2,042,844</b>	<b>\$2,031,853</b>	<b>\$1,753,340</b>	<b>\$119,414</b>	<b>\$278,513</b>	<b>(\$130,404)</b>	<b>(\$10,990)</b>
<b>2006</b>		262,969	112,843		150,146		
<b>Total All Years</b>	<b>\$2,300,366</b>	<b>\$2,556,307</b>	<b>\$2,054,617</b>	<b>\$127,639</b>	<b>\$501,690</b>	<b>(\$134,657)</b>	<b>(\$7,018)</b>

# Industry Reserve Position—All Casualty Lines

*The source of reserve strengthening, leading to current redundancy, was at least four years when premium growth well outstripped loss growth.*

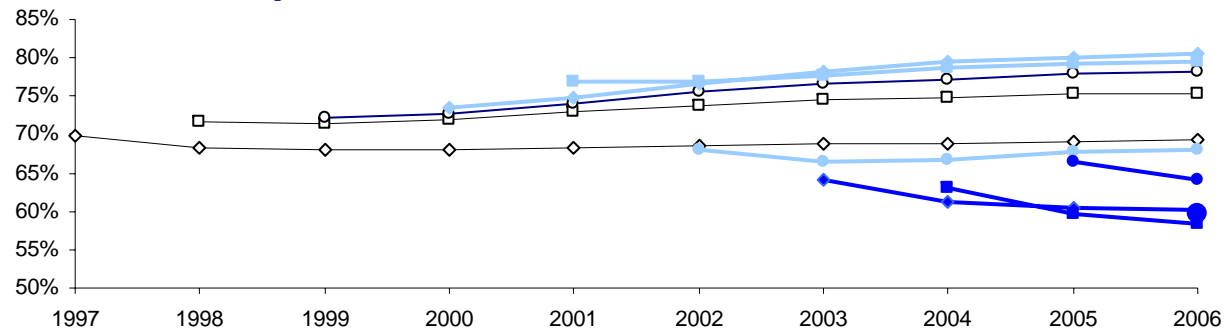
*Latest accident years show lower loss ratios and downward development.*

## Growth of Premiums and Calendar-Year Losses Indexed to First Year of Premiums, Total All Lines



Source: Company statutory filings

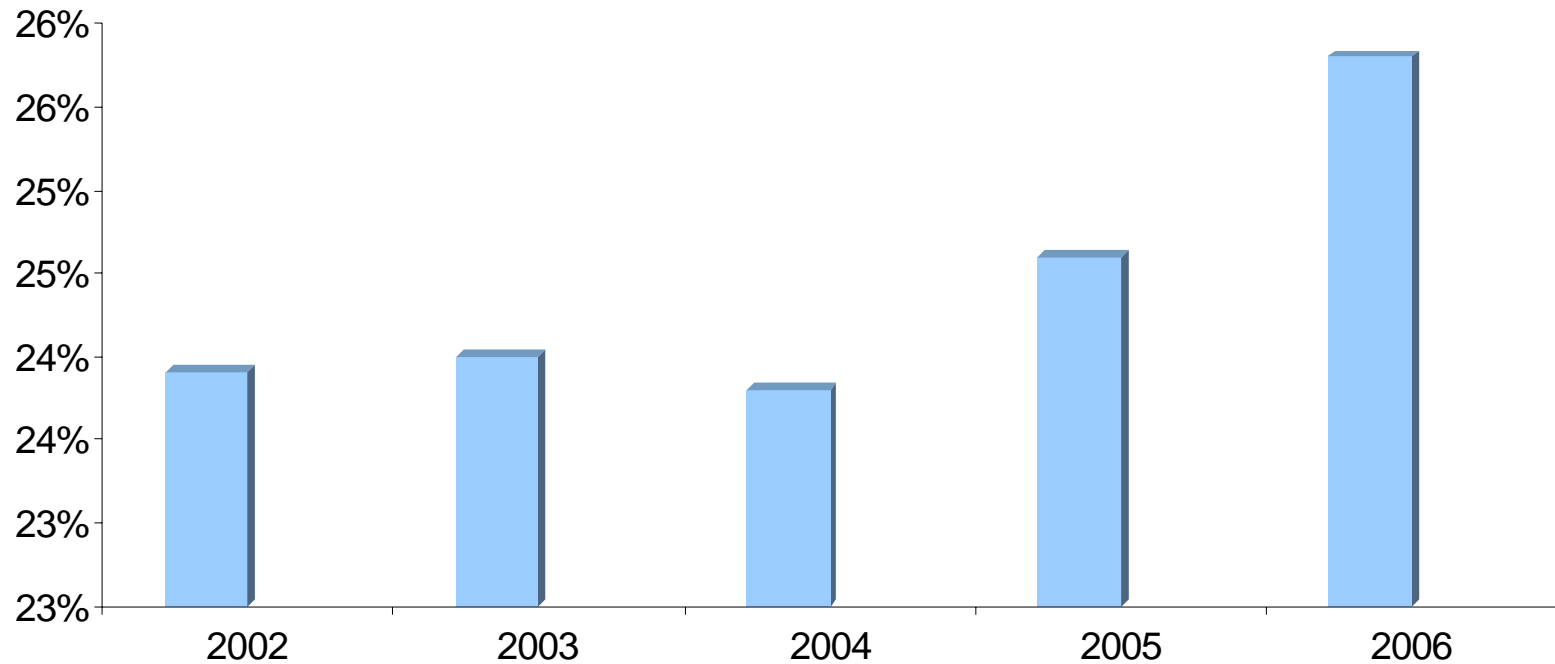
## Accident-Year Loss Development—Loss Ratio Restated at Each Subsequent Period, Total All Lines



Source: Company statutory filings

# Reserve Tail is getting heavier

## Percentage of Loss Reserves over 5 Years Duration PC Industry All Lines Combined



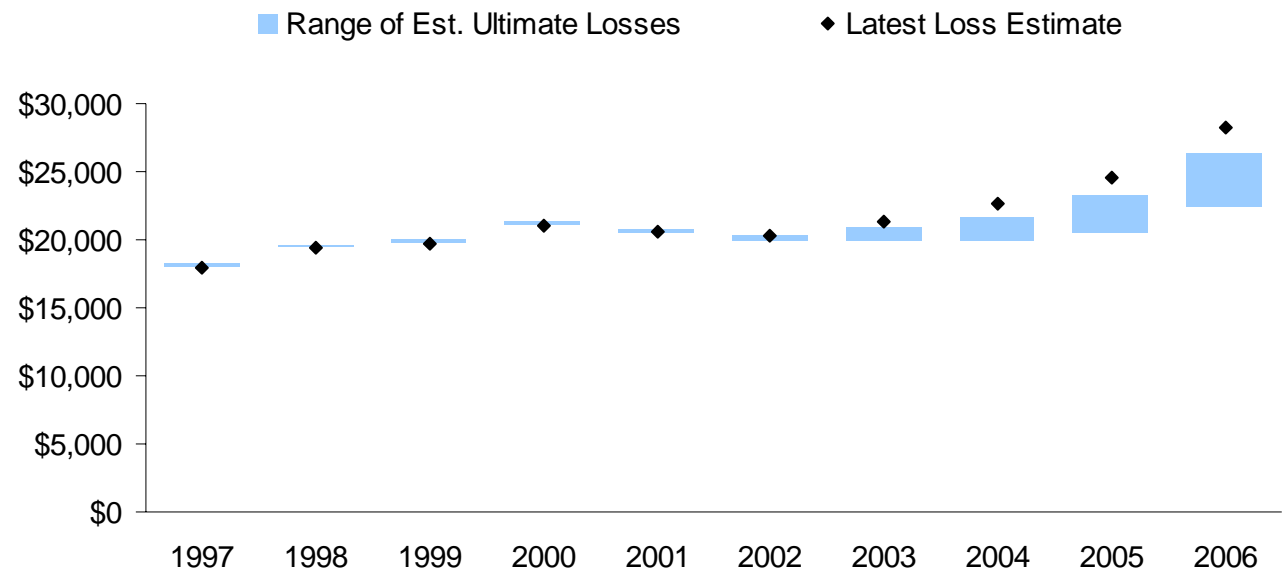
Source: Industry Schedule P Data, Conning Research & Consulting, Inc. Analysis

# Workers' Compensation

*Through a variety of techniques, Conning develops a range of estimated ultimate loss ratios that suggests significant potential redundancy in the most recent accident years.*

*But note the growth in incurred loss dollars!*

**Range of Estimated Ultimate Losses versus Latest Estimated Accident-Year Losses, Workers' Compensation**  
(\$ in millions)

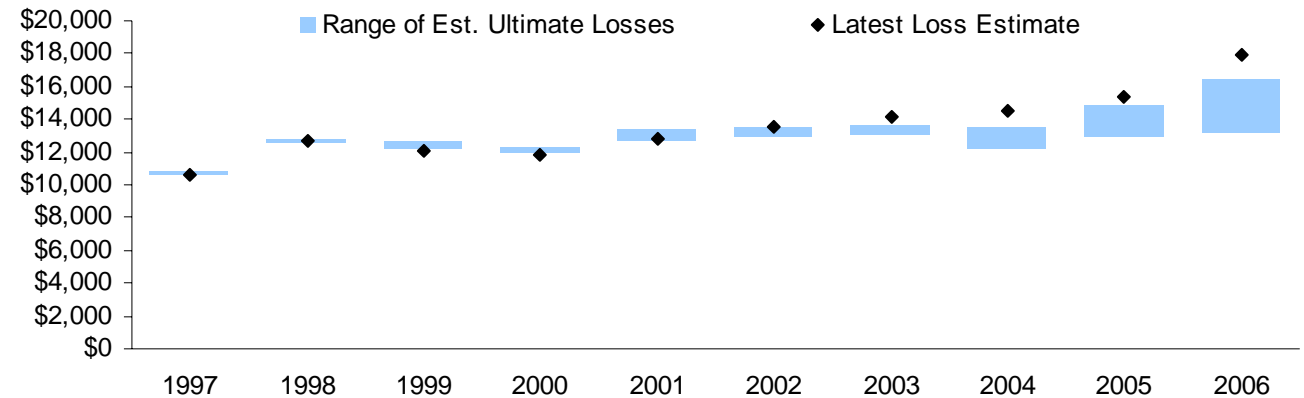


Source: Conning Research & Consulting, Inc.

# Other Liability

## Range of Estimated Ultimate Losses versus Latest Estimated Accident-Year Losses, Other Liability–Occurrence

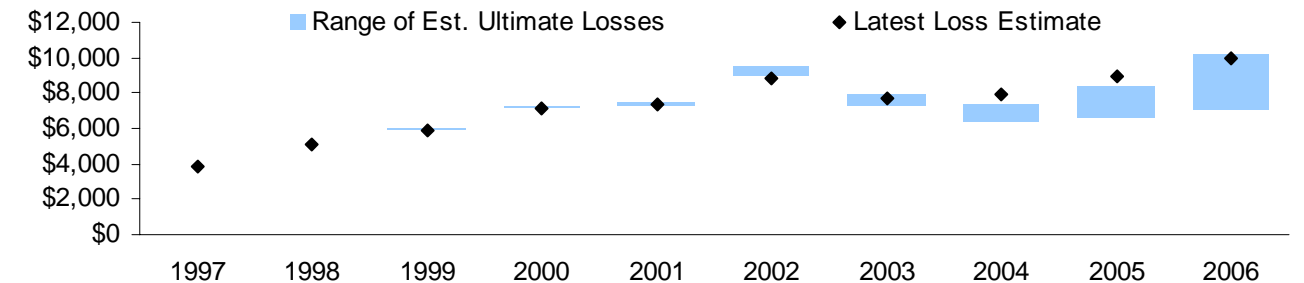
(\$ in millions)



Source: Conning Research & Consulting, Inc.

## Range of Estimated Ultimate Losses versus Latest Estimated Accident-Year Losses, Other Liability–Claims-Made

(\$ in millions)



Source: Conning Research & Consulting, Inc.

*Using a variety of techniques, Conning suggests reserve redundancies have built up in the most recent years, while some inadequacies may yet persist in older accident years.*

*Overall, both lines appear net redundant, modestly so for occurrence, with the greatest redundancy in the claims-made forms at 13%.*

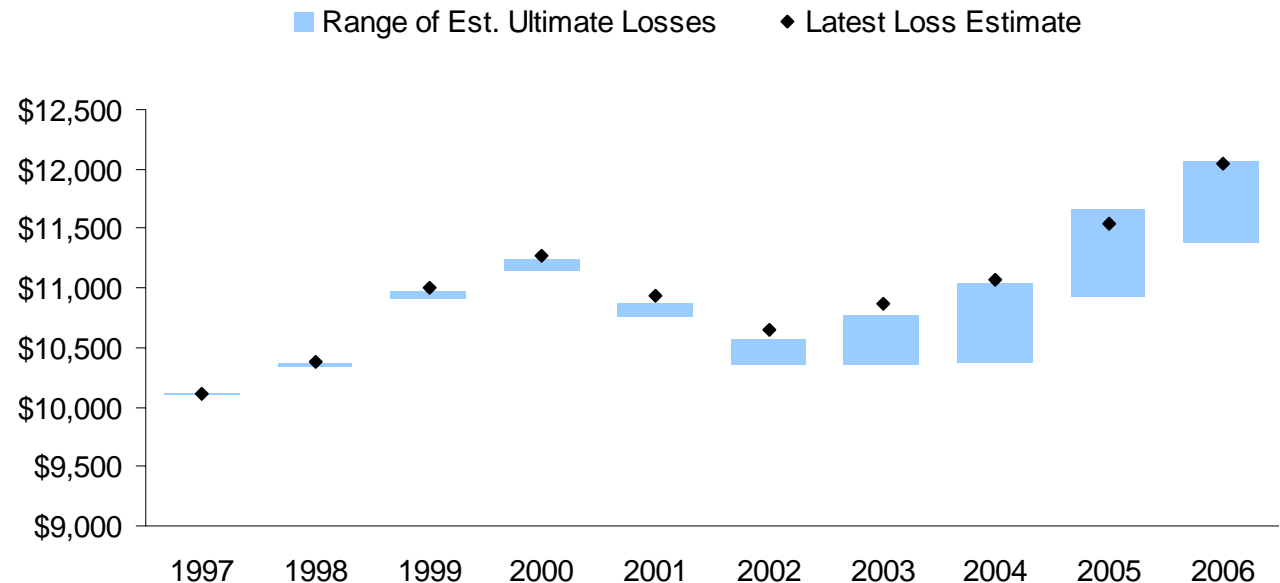


# Commercial Auto/Truck Liability/Medical

*Carried estimates of incurred losses suggest a steep buildup in recent accident years.*

*But loss development patterns suggest substantial redundancy in the reserves that would moderate this growth somewhat.*

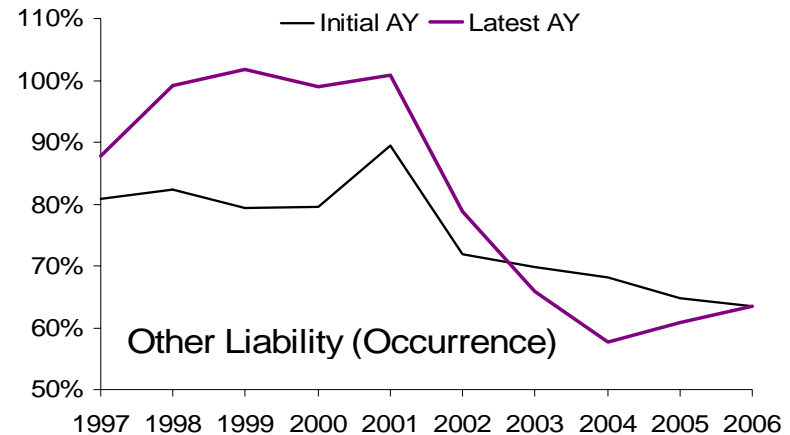
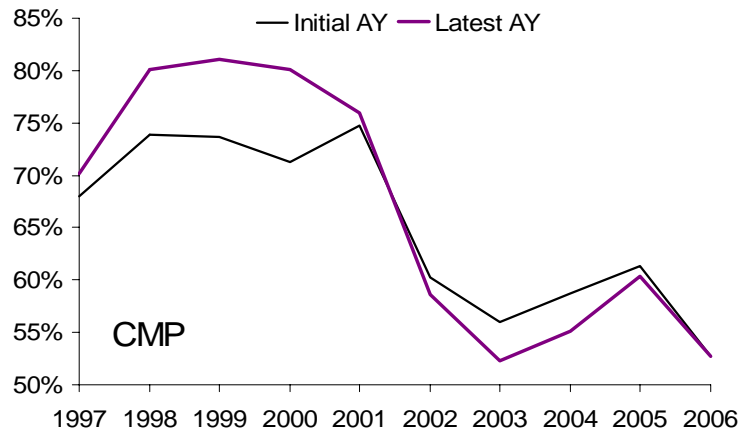
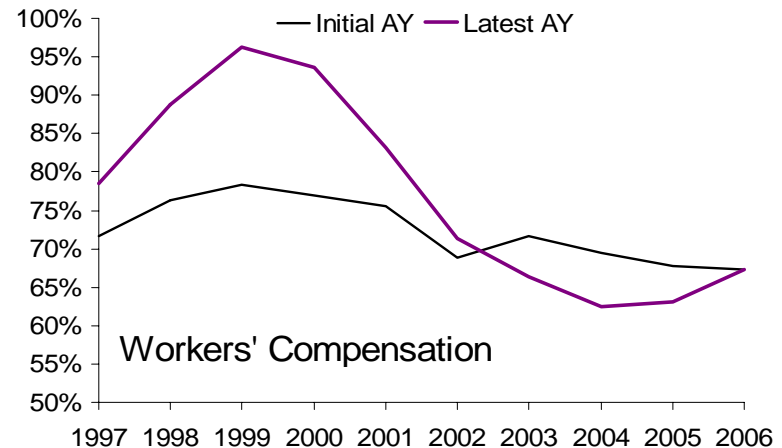
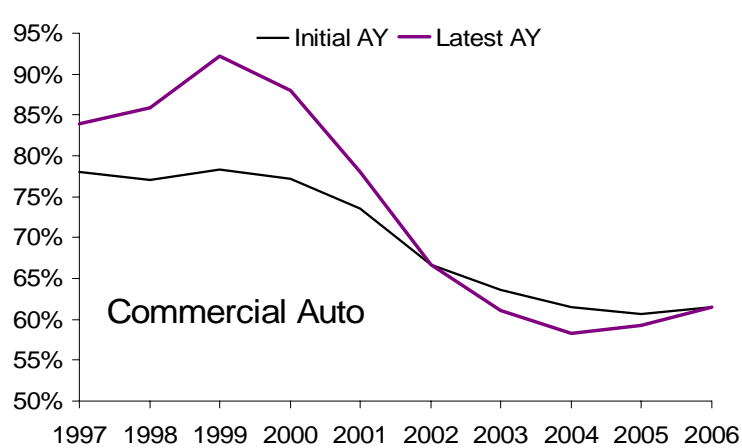
**Range of Estimated Ultimate Losses versus Latest Estimated Accident-Year Losses, Commercial Auto/Truck Liability/Medical**  
(\$ in millions)



Source: Conning Research & Consulting, Inc.

# Correlation of losses and loss development

## Initial & Latest Estimated Accident-Year Loss Ratios



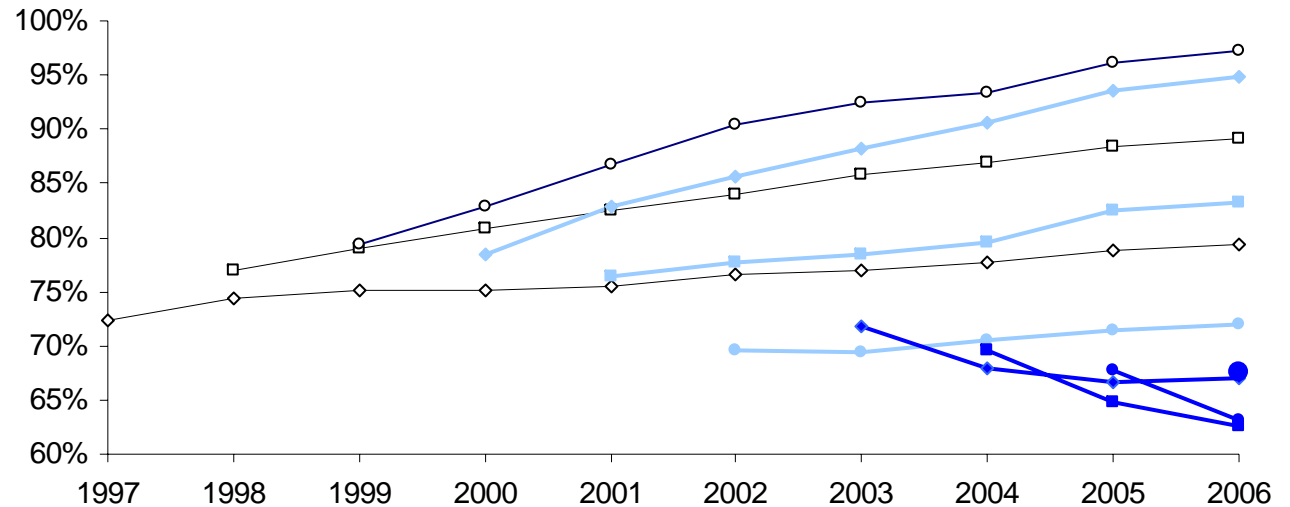
Impact of loss development across casualty lines is a major factor in producing volatility of results. 1997-2000 adverse, 2002-2005 favorable.

# Workers' Compensation

*Even though total accident-year incurred losses have grown in the most recent years, the strengthening of accident years in 1998-2001 has given way to releases and substantially lower loss ratios in 2003-2006.*

*Some of this anticipates the effects of reforms.*

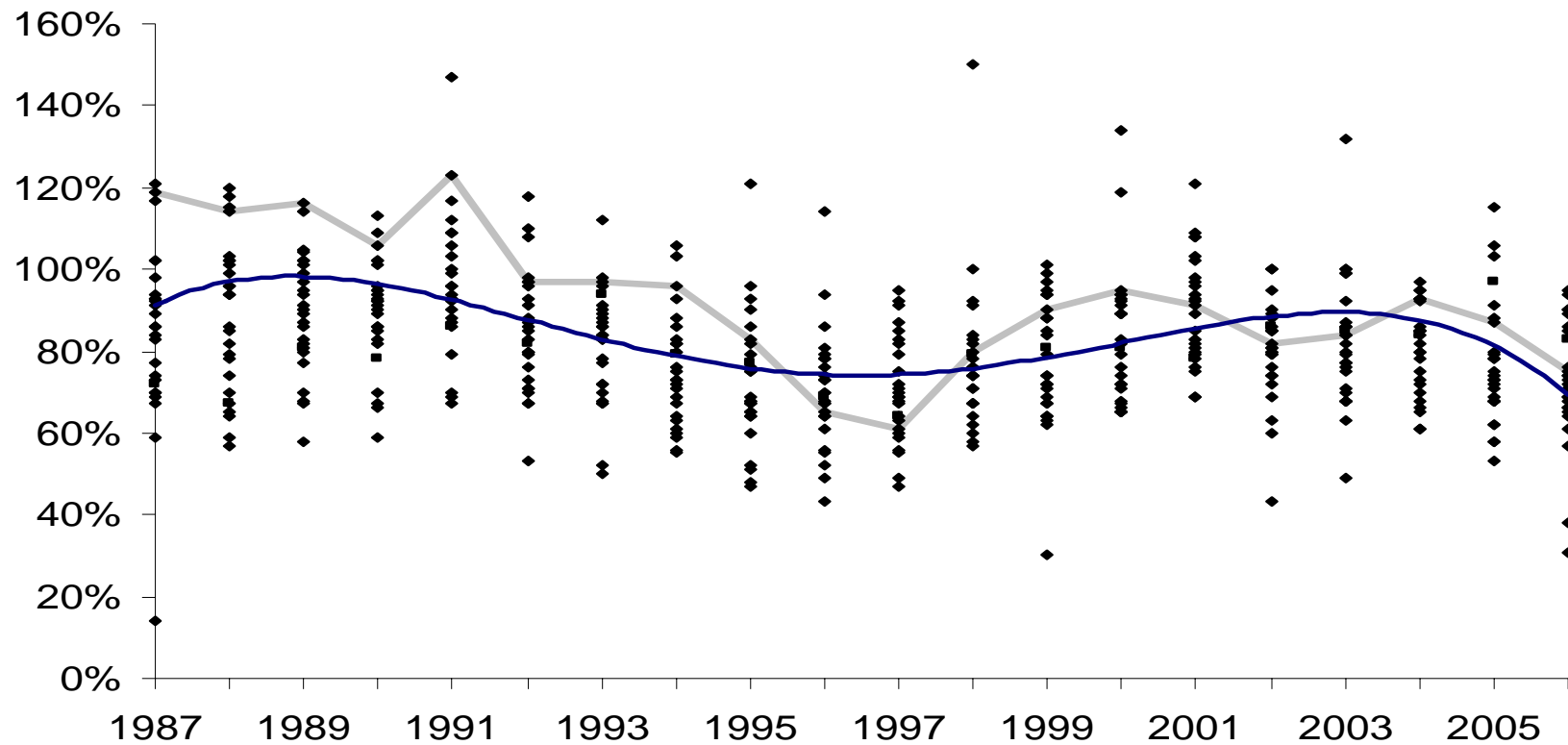
## Accident-Year Loss Development—Loss Ratio Restated at Each Subsequent Period, Workers' Compensation



Source: Company statutory filings

# Volatility at the Company Level

## Combined Ratio Volatility Among Top 25 Workers' Compensation Insurers

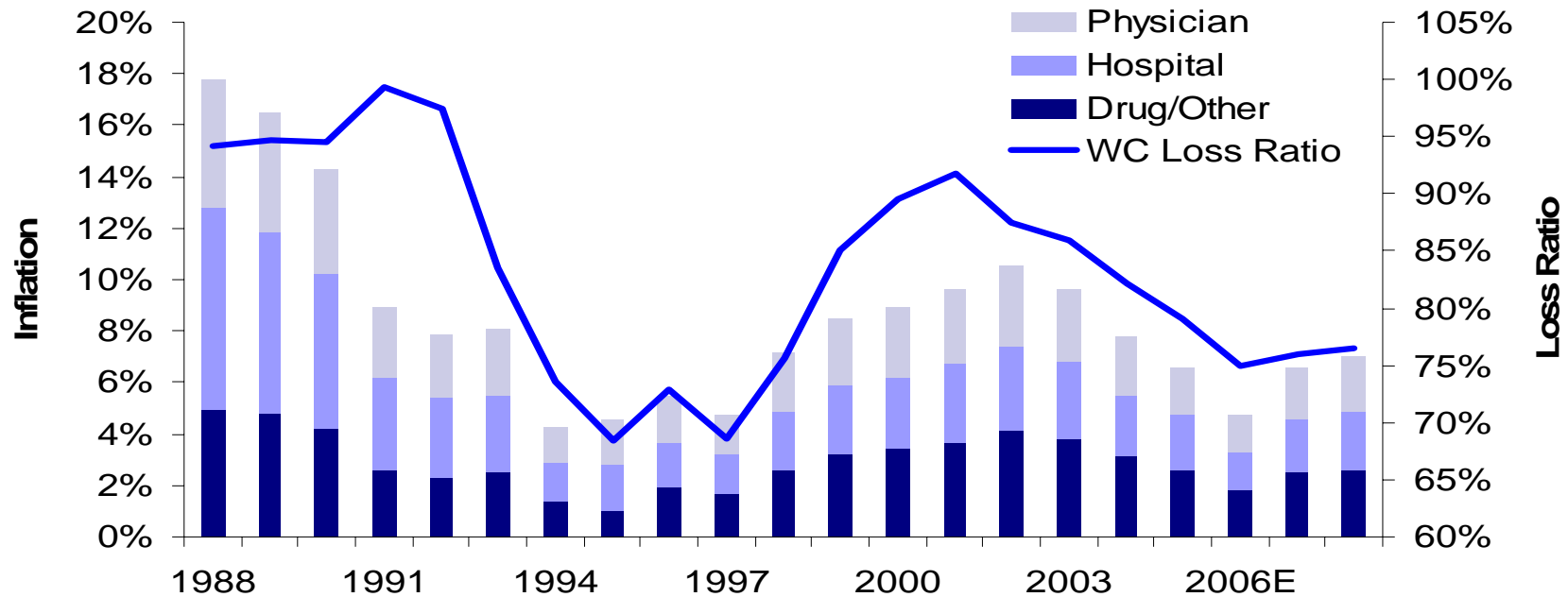


Note: Grey line represents a single sample company.

Source: A. M. Best, company statutory filings, Conning Research & Consulting, Inc. analysis

# Medical inflation and casualty losses

Workers' Compensation Loss Ratio vs. Change in Health Expenditure Components (Private Insurance)



Source: CMS Private Insurance, Company Statutory filings, Conning Research & Consulting, Inc. analysis

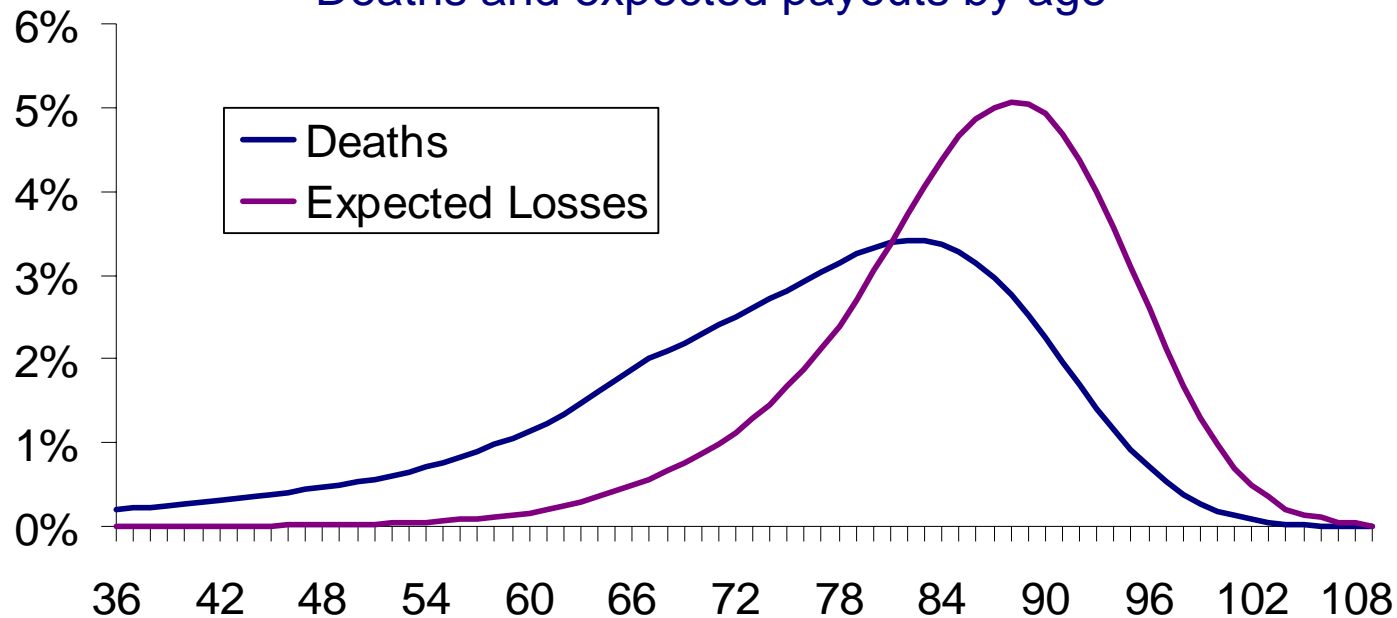
**Hypothesis:**

Growth in medical inflation and utilization costs has been a key driver in casualty loss ratios and loss reserve growth.

# Stochastic Reserving:

## Medical inflation and disability longevity

Deaths and expected payouts by age

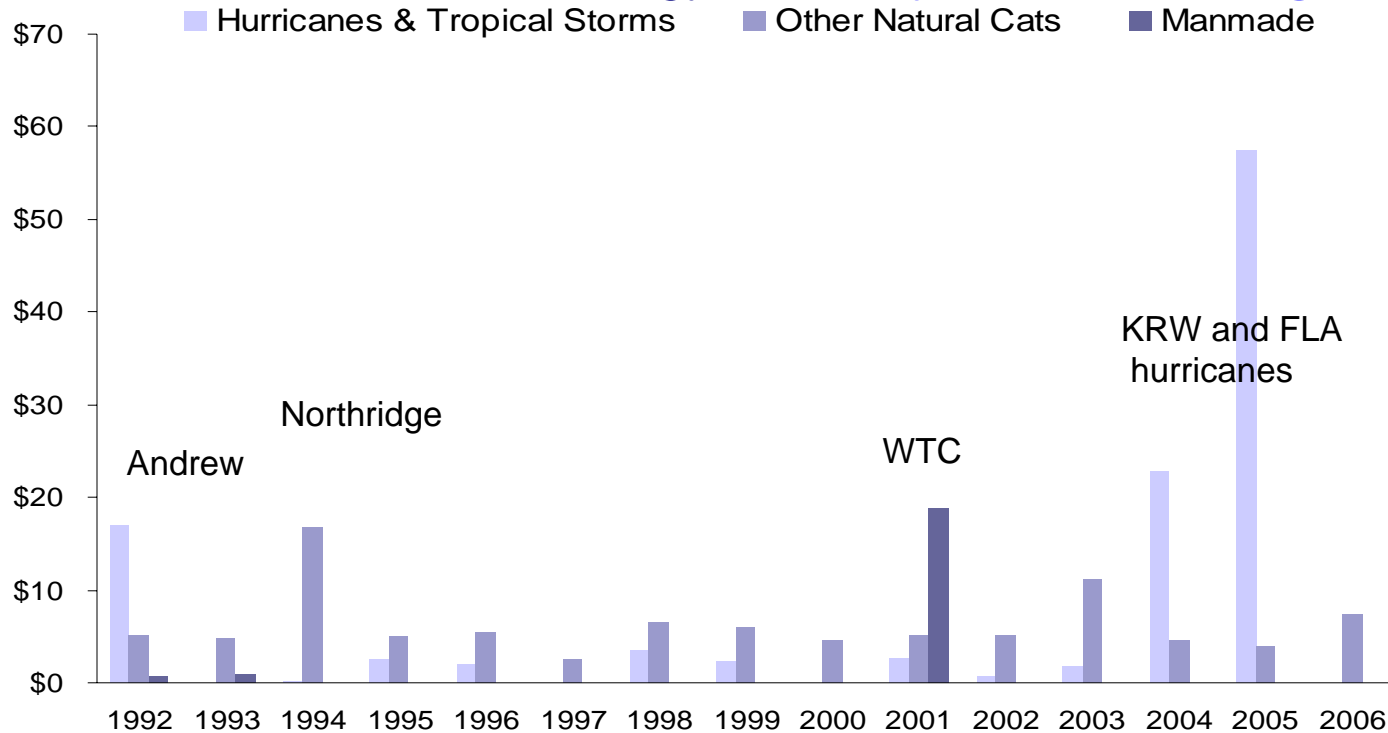


Source: *Estimating the Workers' Compensation Tail*, Richard E. Sherman and Gordon F. Diss

The compounding effects of increasing medical costs (medical inflation and utilization) and increasing longevity of the disabled can lead to geometric increases in casualty loss costs—workers' compensation and other bodily injury liability sectors.

This is increasing volatility and risk.

# Catastrophes and model risk: Natural, manmade, terrorism, pandemics, nanotechnology, casualty shock, viral litigation



Source: Property Claims Service

Each new catastrophe changes our models.

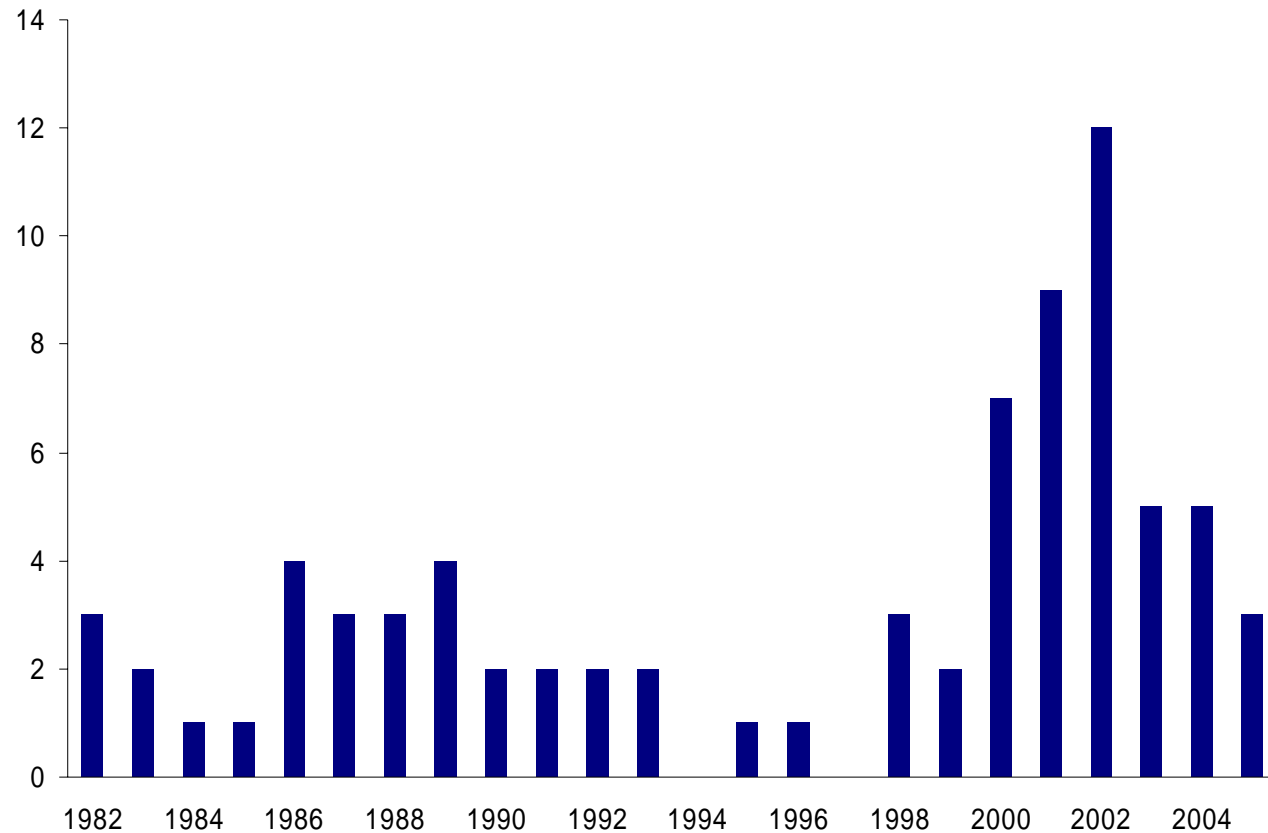
Casualty catastrophes may present similar challenges, but emerge over a longer period of time

# Has the next Asbestos already happened?

## Bankruptcies from Asbestos

Companies have reason to fear emerging risks such as latent injury or disease

And the ability of the plaintiff bar to creatively evolve with new theories and tactics

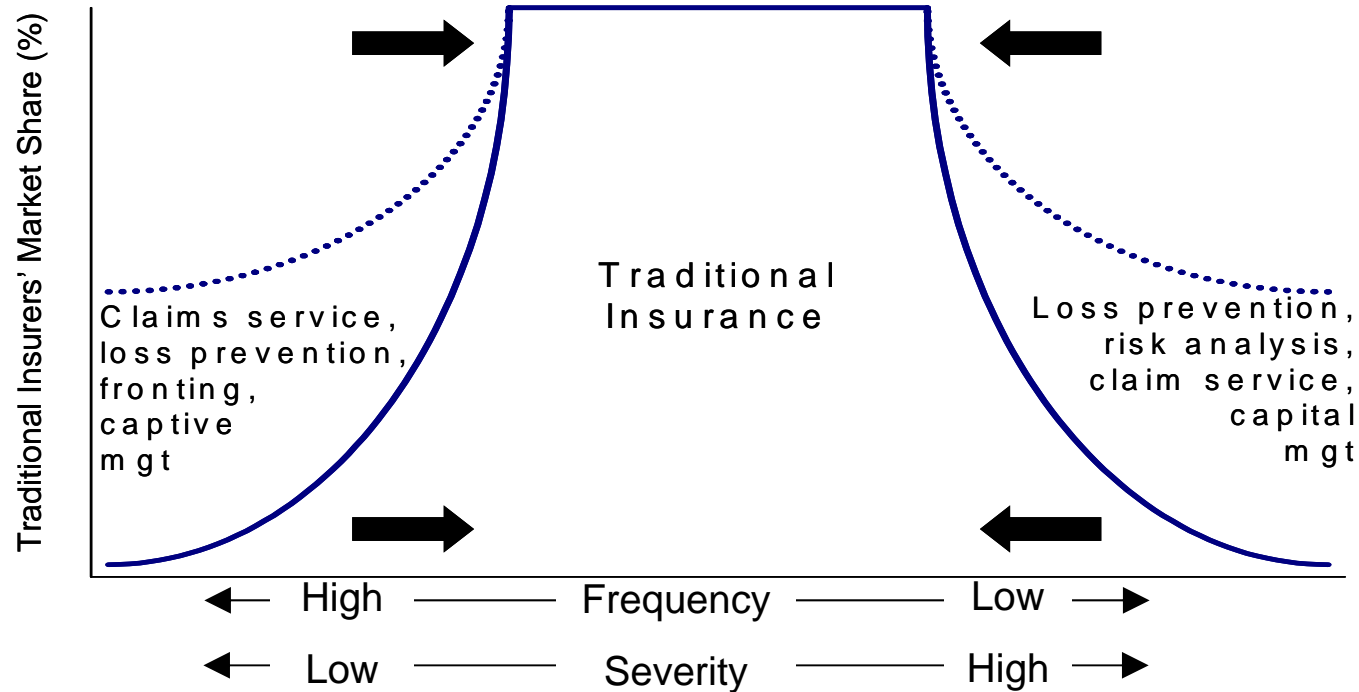


Source: Actuarial Issue Brief February 2006



# Shrinking market share of risk: Changing underlying loss distributions

Loss Spectrum



- Insurance and reinsurance increasingly occupying the middle-of-the road position
- **High-frequency/low-severity events** handled by self-insured retentions
- **Low-frequency/high-severity events** addressed by capital markets or government solutions

## Conclusions– Part I

- Most of “redundancy” is still very, very green– bad things usually happen later
- Sustainability and effect of recent reform legislation in many Casualty lines not fully tested
- Risk Factors are increasing– Inflation, Medical Inflation, correlations, longevity; loss of smaller, more frequent claims
- Credibility for most companies is limited– individual reserves more volatile

## Conclusions– Part II

- Property (and Casualty) Catastrophe exposures growing– timing of losses may not always be clear– New York Catastrophe proposal? Viral Litigation?
- Loss Development is often subject to behavioral changes, not always statistically predictable, subject to herd instinct?
- Marking balance sheets to market is coming– what is the discount?
- Releasing loss reserves is less likely to fuel competition than excess surplus– one supports earnings, but the other demands revenue growth!



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