

Pricing And Reserving Correlation An ERM Perspective

Experiences Of One Actuary

2006 CLRS

Curt Parker, VP Chief Actuary

Grange Mutual Insurance
Companies

Disclaimer:

- Most comments are mine, not those of others.
- If comments seem insightful, probably my original thoughts.
- Comments approaching trite or obvious were stolen from others.

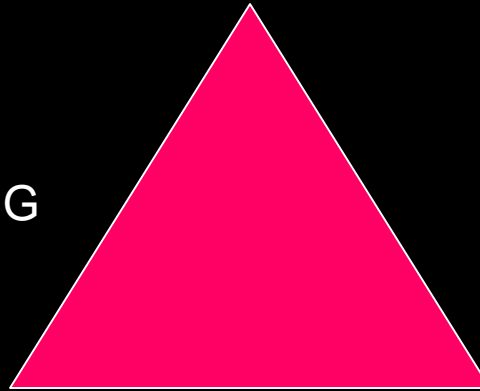
My Job As Chief Actuary:

- Planning
- Pricing Oversight
- Reserving
- Strategic Planning/Evaluations
- Reinsurance
- Incentive Compensation (Management/Agents)

The ERM Connection:

RESERVING

PRICING



PLANNING

Reserving/Planning/Pricing:

- Reserves Evaluated Quarterly – results shared with CEO, CAO, CFO, Presidents and Product Managers of Personal and Commercial Lines and Claims
- Face-to-face meetings to discuss reserve adequacy, trends and implications to calendar year results and pricing margins
- Indications done for major lines (PPA, HO)

A Reserving Aside:

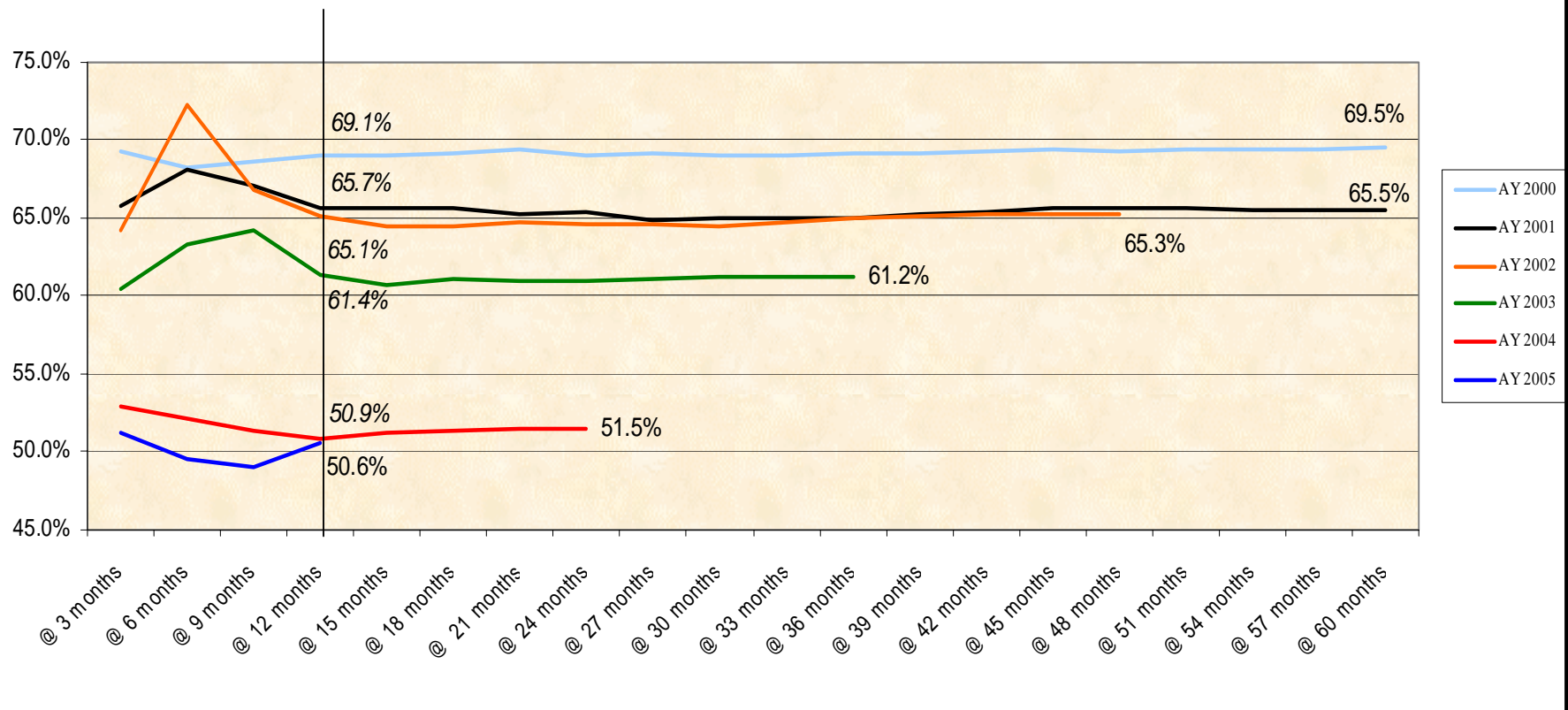
- Just how good are point estimates?
- When do we have a pretty good estimate of ultimate loss and loss expense?
- Can we help others “sleep at night”?

My Boss the CFO:

- He likes us to book more than the actuarial point estimate for reserves...and so do I based on statistical analysis completed...as opposed to an inherent distrust of actuaries in general

All Lines Graph

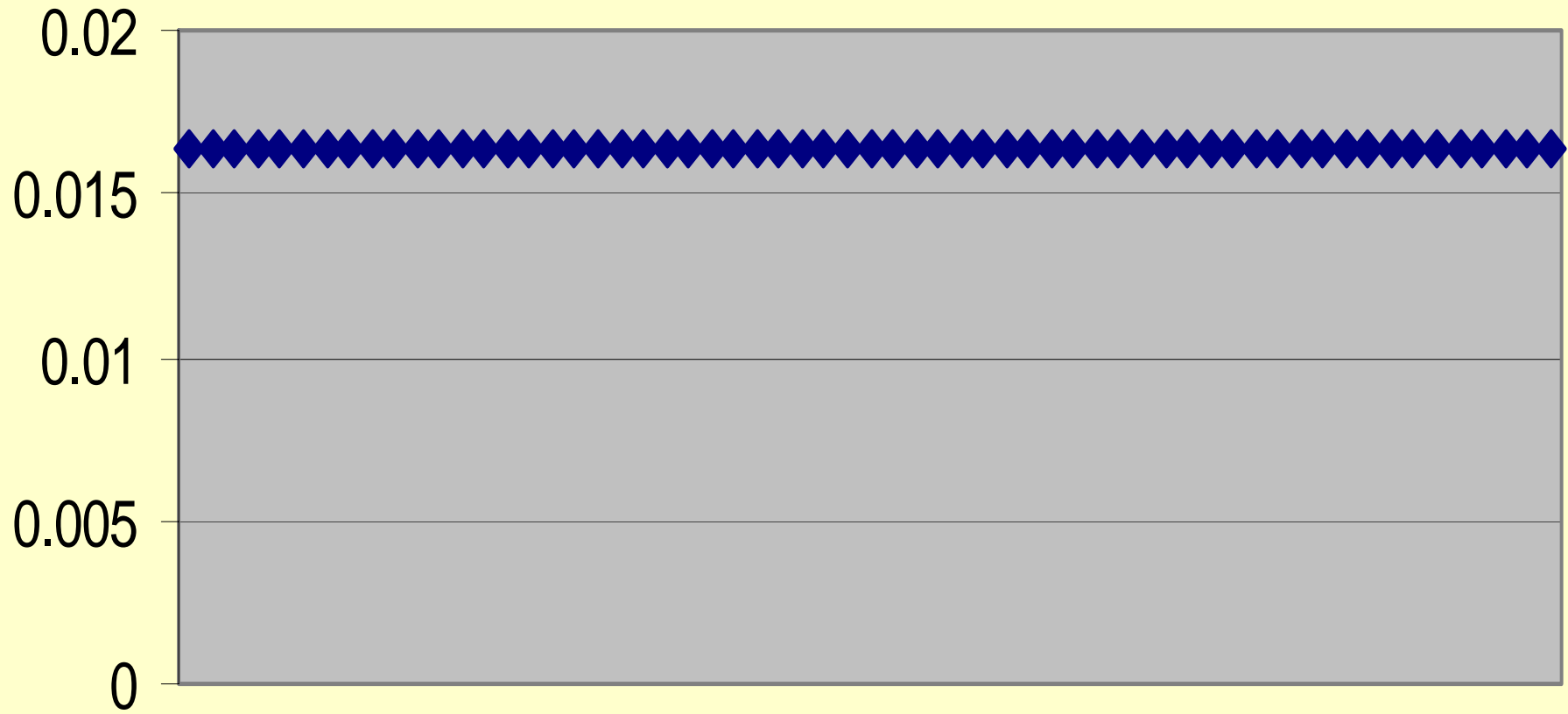
All Lines



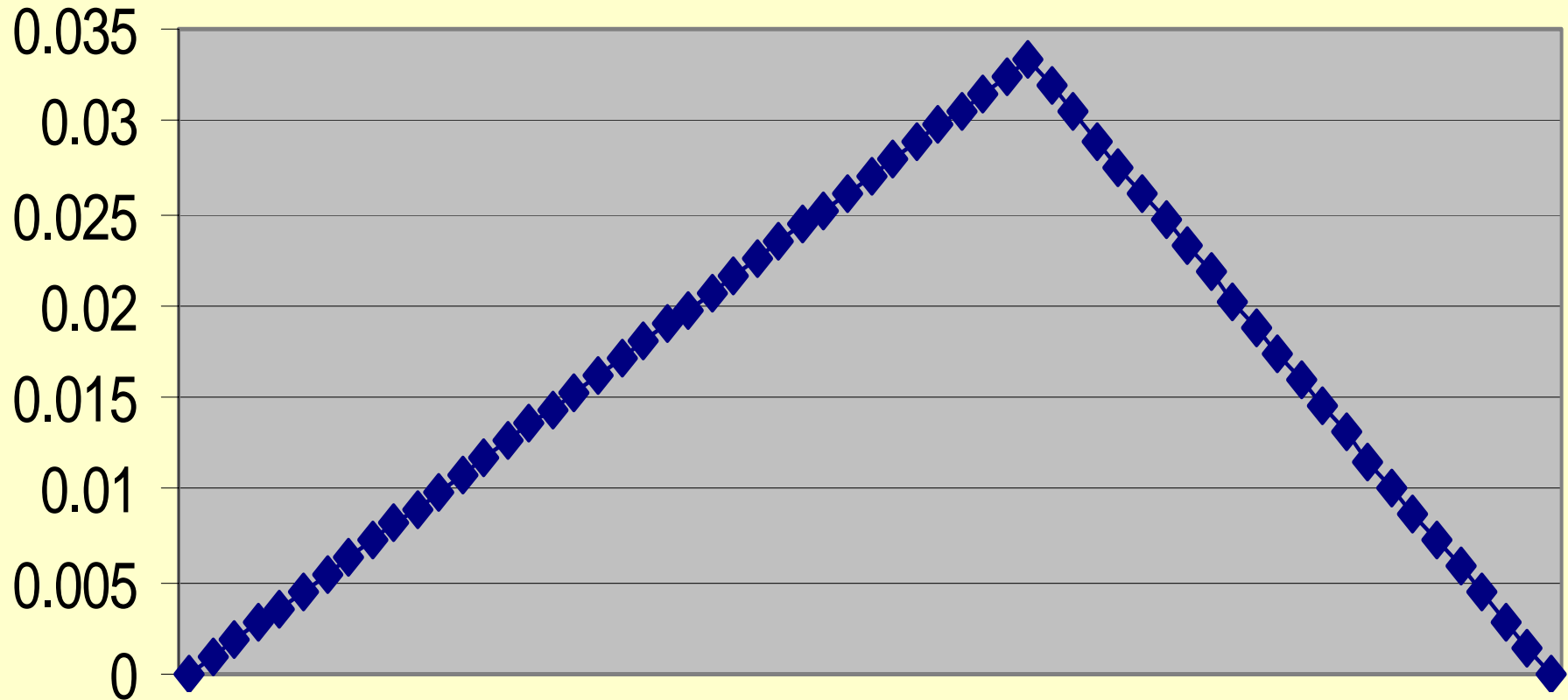
Range Analysis Steps

- Determine High & Low Estimates
- Determine Confidence You Have In Point Estimates
- Assign Appropriate Distribution By Accident Year
- Simulations to Determine Mean and Percentiles

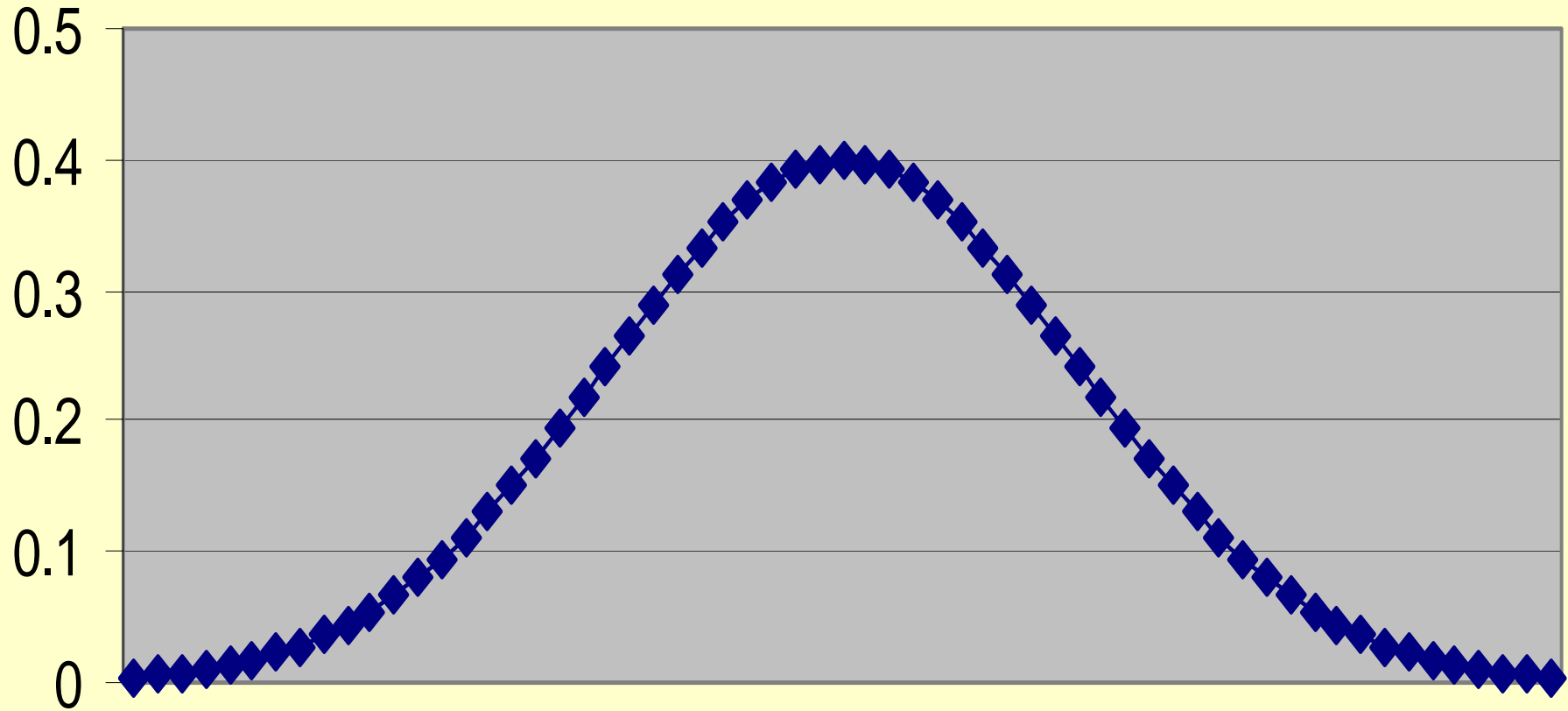
Uniform Distribution



Triangle Distribution



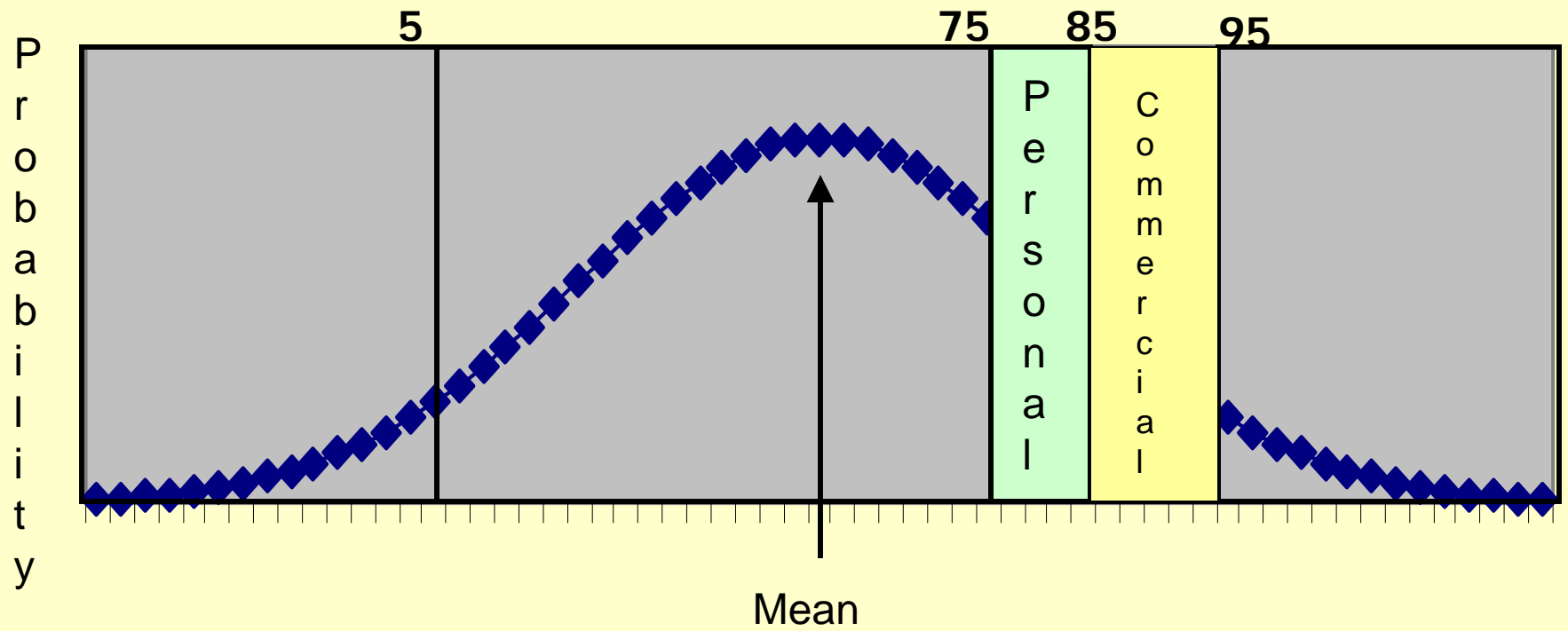
Normal Distribution



Range Analysis

Year	90.0%	
	0.05	0.95
1993	18	18
1994	160	463
1995	179	333
1996	402	995
1997	1,747	2,254
1998	3,508	3,784
1999	8,041	9,278
2000	20,743	22,461
2001	40,983	45,532
2002	85,728	104,822
	161,510	189,941

Recommended Range



Reserving – Pricing Connection

- Review of critical trends
- Reconciliation of AY & CY Results
- Independent Indications

Trends of Focus:

- Frequency, Severity, Pure Premiums
- Loss Ratios
- Loss Ratios Adjusted for “normal” large and weather losses
- Combined Ratios

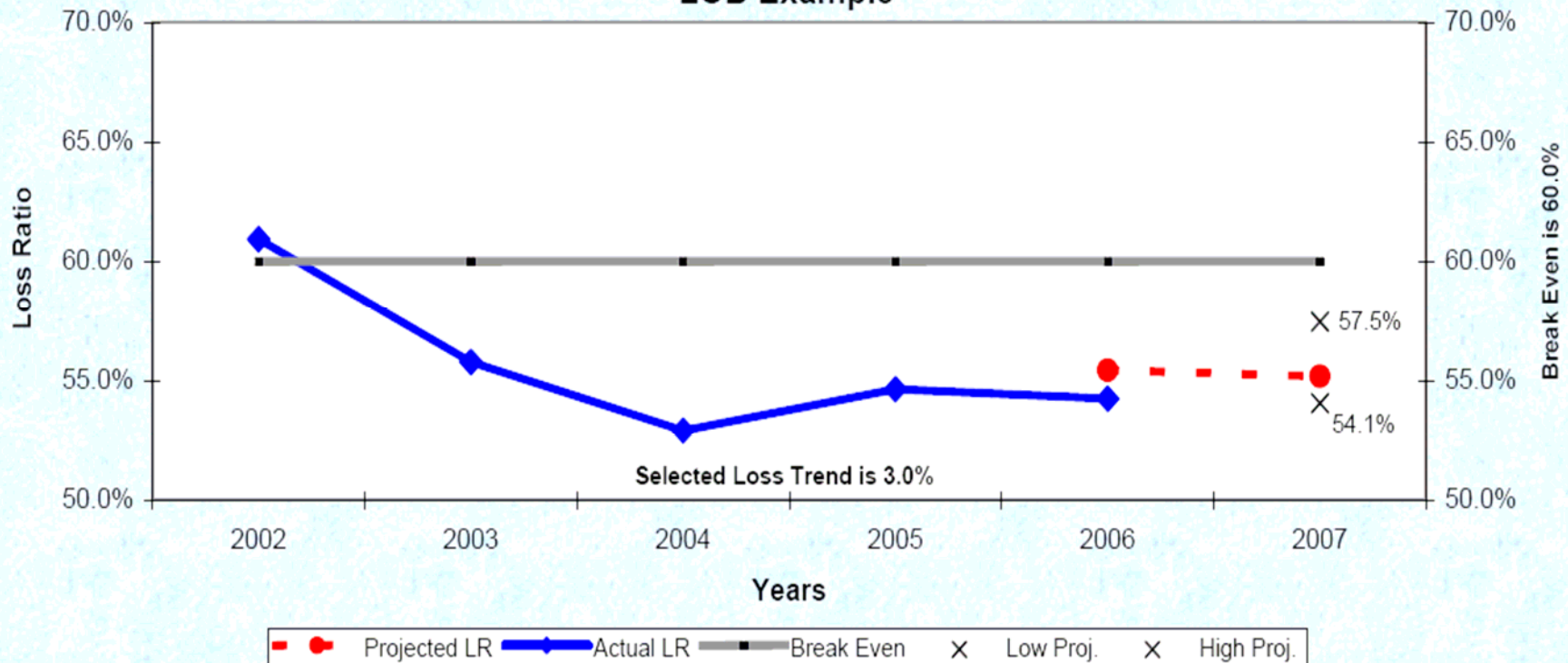
Reconciliation of AY & CY:

- Explain impact of prior AY's on Current CY results
- Annual Plan CY basis (Why: To quote the CFO: "Because it never changes!")
- Much Focus on "pricing margin changes"
- Want to influence pricing decisions within the framework of risk return decisions

A Tale of Two LOB's

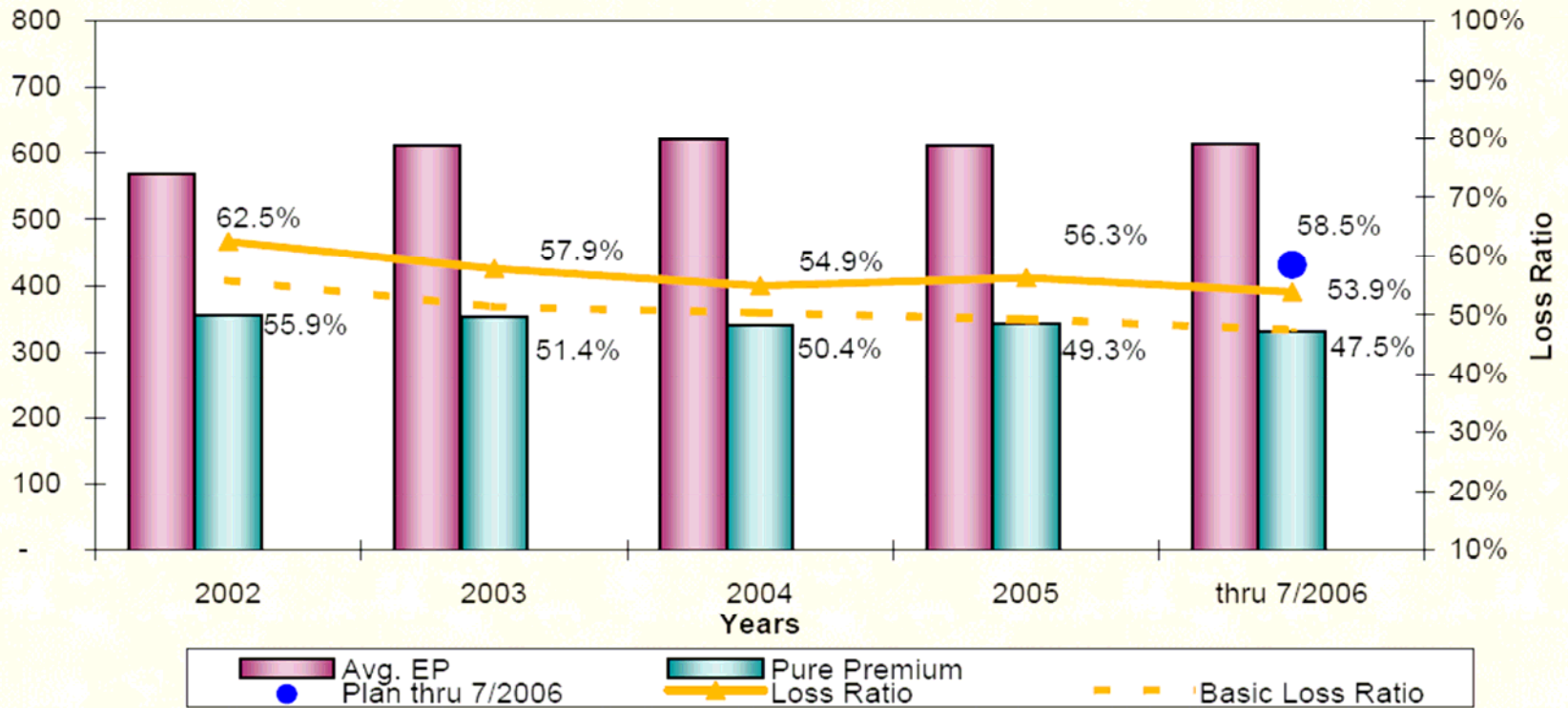
The Good, The Bad, And
The Message

LOB Example



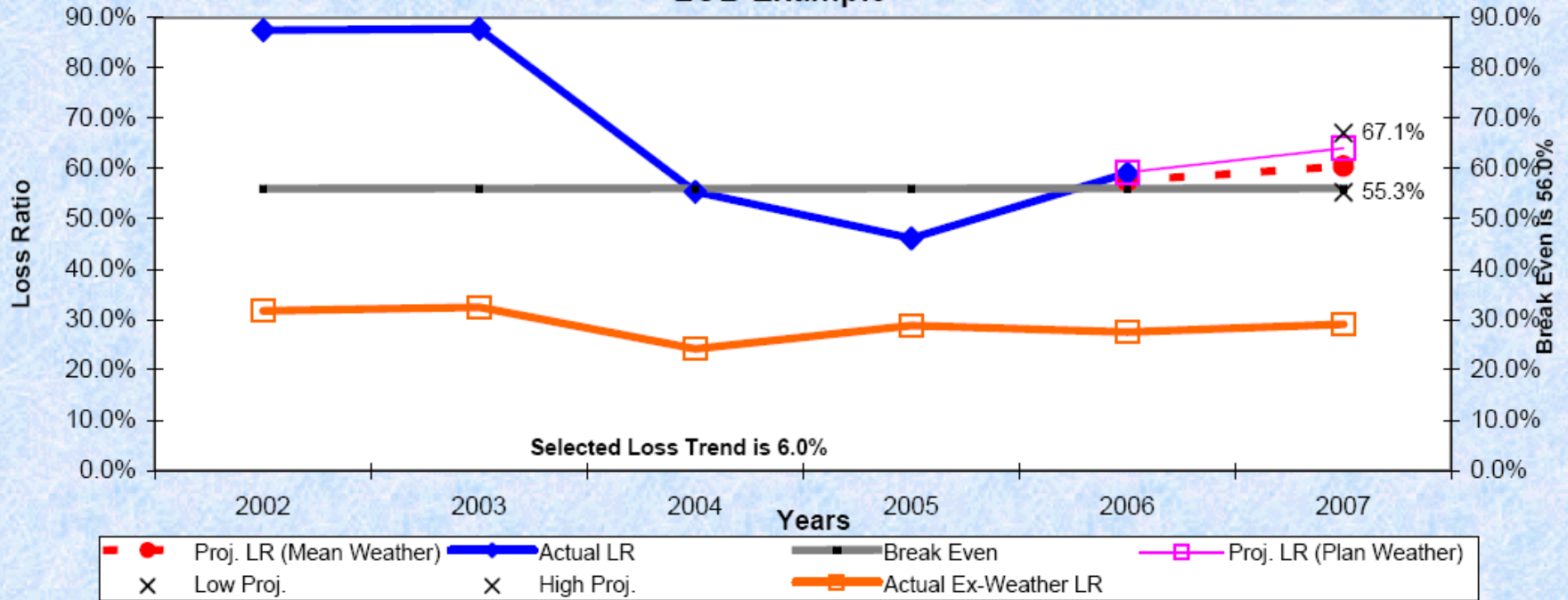
	2002	2003	2004	2005	2006 - ytd	2006 Proj	2007 Proj
Avg. EP	598	641	651	649	651	655	681
Chg. In Avg. EP	8.9%	7.1%	1.6%	-0.3%	0.2%	0.8%	4.1%
Pure Prem.	364	357	344	355	353	363	376
Chg. In PP	4.9%	-1.9%	-3.6%	3.0%	-0.5%	2.3%	3.6%
Chg. In Avg. ERL	-15.0%	7.4%	4.2%	1.4%	1.0%	1.0%	1.9%
Loss Ratio	60.9%	55.8%	52.9%	54.7%	54.2%	55.4%	55.2%
Comb. Ratio	100.9%	95.8%	92.9%	94.7%	94.2%	95.4%	95.2%

LOB Example
Pure Premium vs. Avg. EP



	2002	2003	2004	2005	thru 7/2006	Plan thru 7/2006
Avg. EP	569	611	622	611	614	628
Chg. In Avg. EP		7.4%	1.7%	-1.8%	0.5%	2.8%
Pure Prem.	356	354	341	344	331	367
Chg. In PP		-0.6%	-3.4%	0.8%	-3.9%	6.8%
Loss Ratio	62.5%	57.9%	54.9%	56.3%	53.9%	58.5%
* Basic LR	55.9%	51.4%	50.4%	49.3%	47.5%	
Basic PP	318	314	313	301	292	
Chg. In Basic PP		-1.3%	-0.2%	-3.8%	-3.1%	

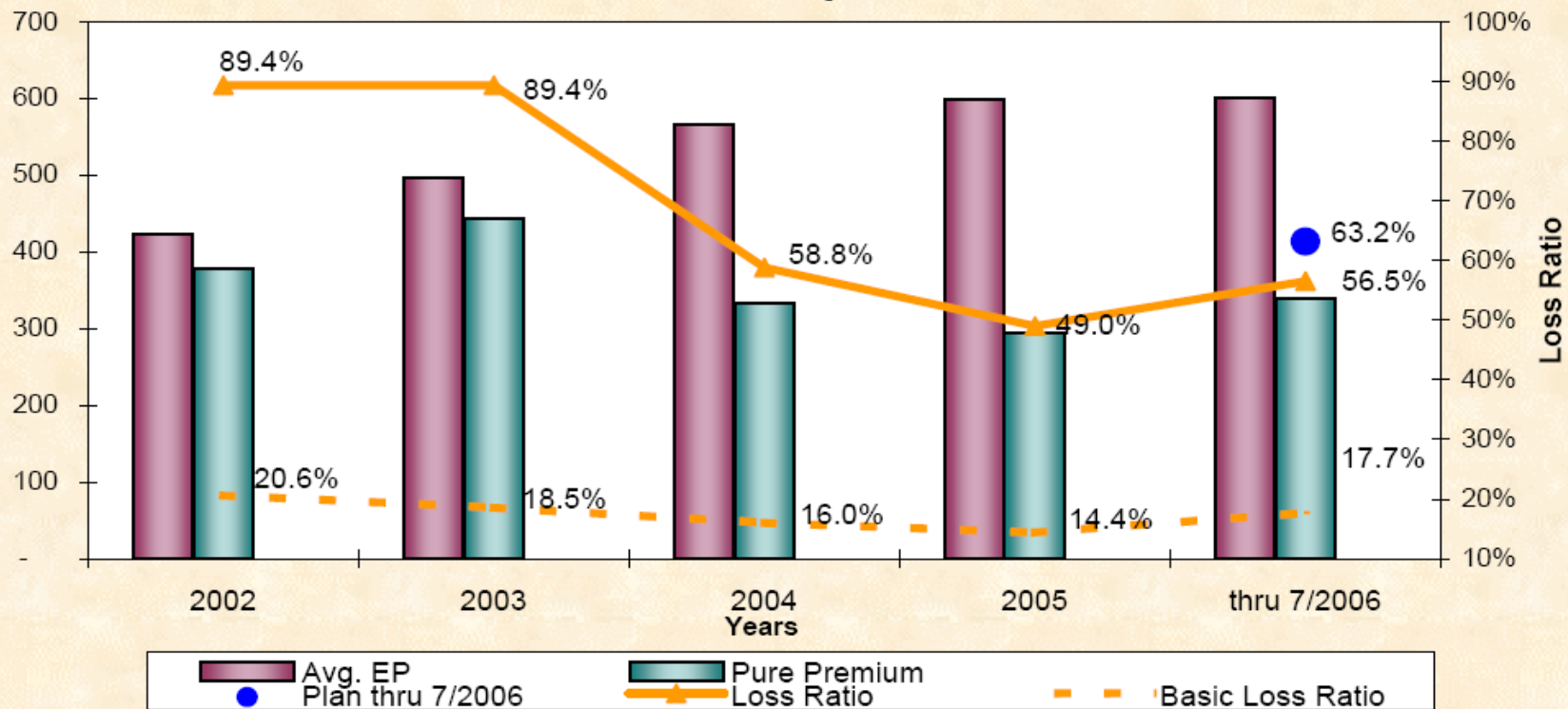
LOB Example



	2002	2003	2004	2005	2006 - ytd	2006 Proj	2007 Proj
Avg. EP	418	491	560	599	607	609	641
Chg. In Avg EP	9.8%	17.3%	14.1%	7.0%	1.3%	1.7%	5.2%
Pure Prem.	366	431	310	276	359	351	388
Chg. In PP	22.9%	17.6%	-28.0%	-10.9%	29.8%	26.9%	10.6%
Chg. In Avg. ERL	-27.2%	13.7%	16.3%	10.7%	-0.3%	-0.3%	1.6%
Loss Ratio (A)	87.5%	87.8%	55.4%	46.1%	59.1%	57.5%	60.5%
Comb. Ratio (A)	131.5%	131.8%	99.4%	90.1%	103.1%	101.5%	104.5%
Loss Ratio (B)						59.3%	64.0%
Comb. Ratio (B)						103.3%	108.0%

(A) Uses MEAN Weather. (B) Uses PLAN Weather.

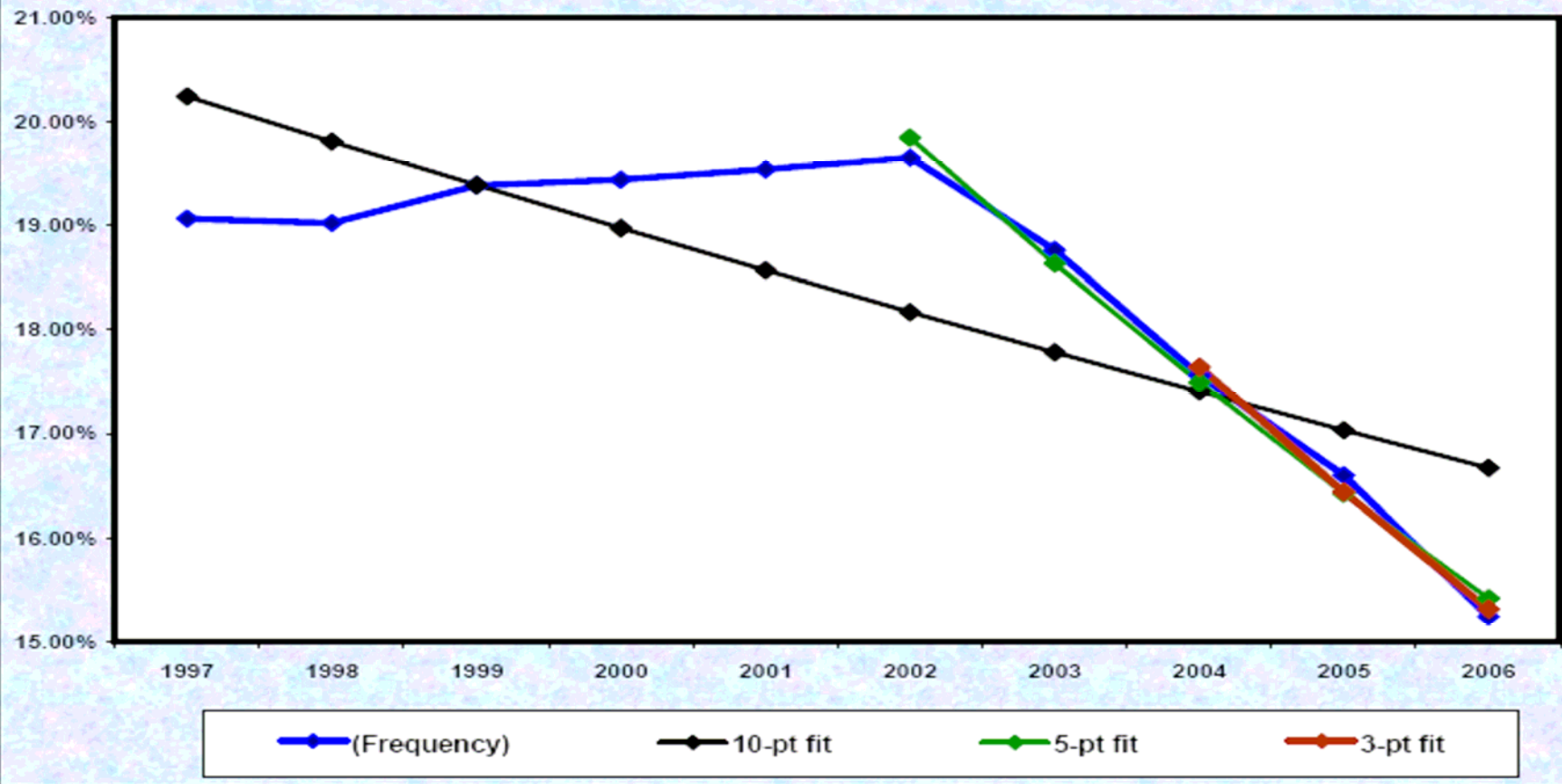
LOB Example
Pure Premium vs. Avg. EP



	2002	2003	2004	2005	thru 7/2006	Plan thru 7/2006
Avg. EP	424	496	565	600	600	623
Chg. In Avg. EP		17.1%	13.9%	6.1%	0.1%	3.9%
Pure Prem.	379	444	332	294	339	394
Chg. In PP		17.1%	-25.0%	-11.6%	15.4%	33.9%
Loss Ratio	89.4%	89.4%	58.8%	49.0%	56.5%	63.2%
* Basic LR	20.6%	18.5%	16.0%	14.4%	17.7%	
Basic PP	87	92	91	86	106	
Chg. In Basic PP		5.5%	-1.5%	-5.0%	23.4%	

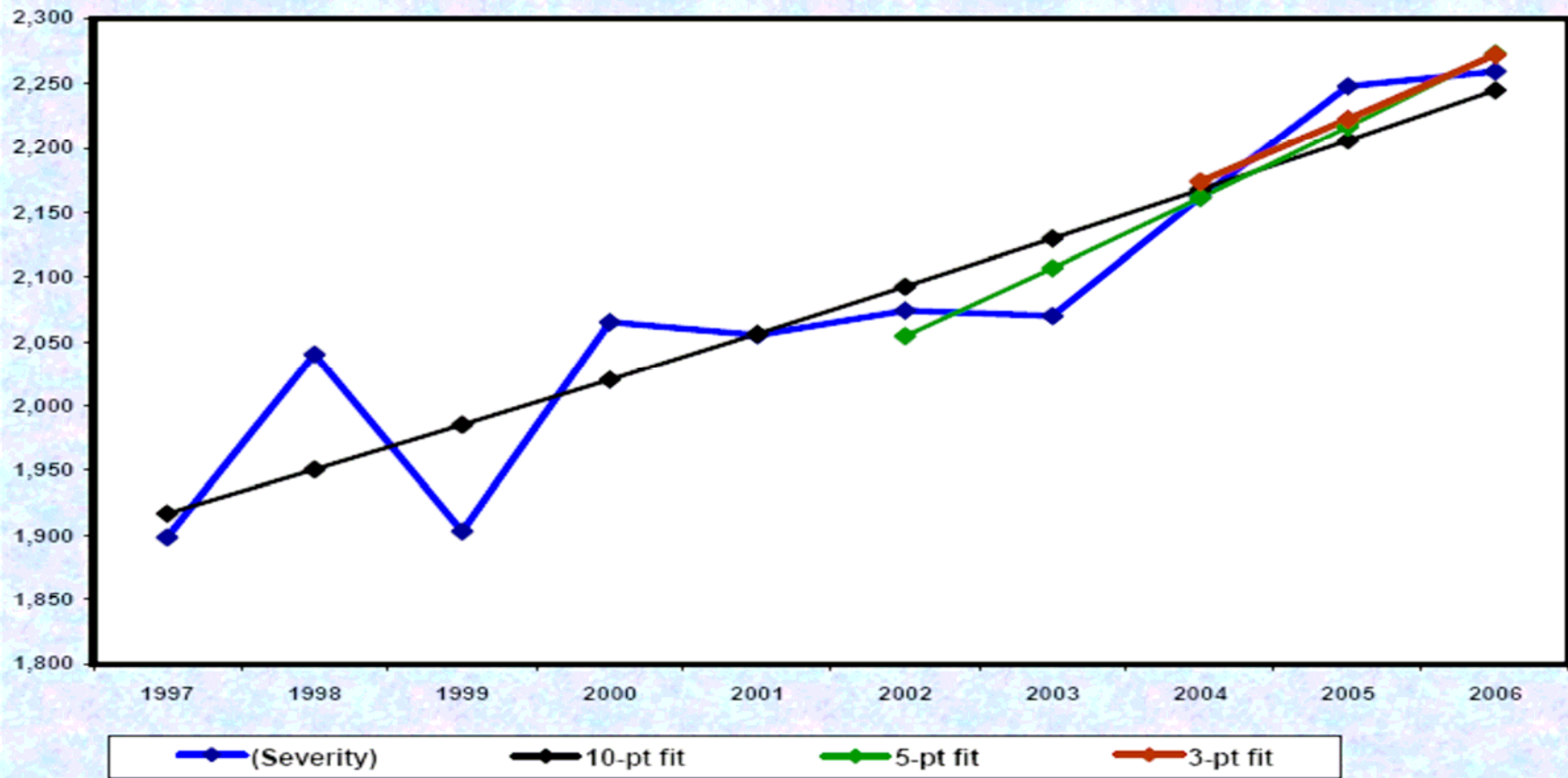
Some Less Busy Examples

FREQUENCY (Typical Policy)



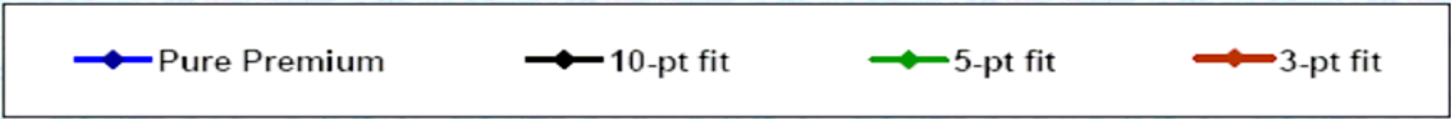
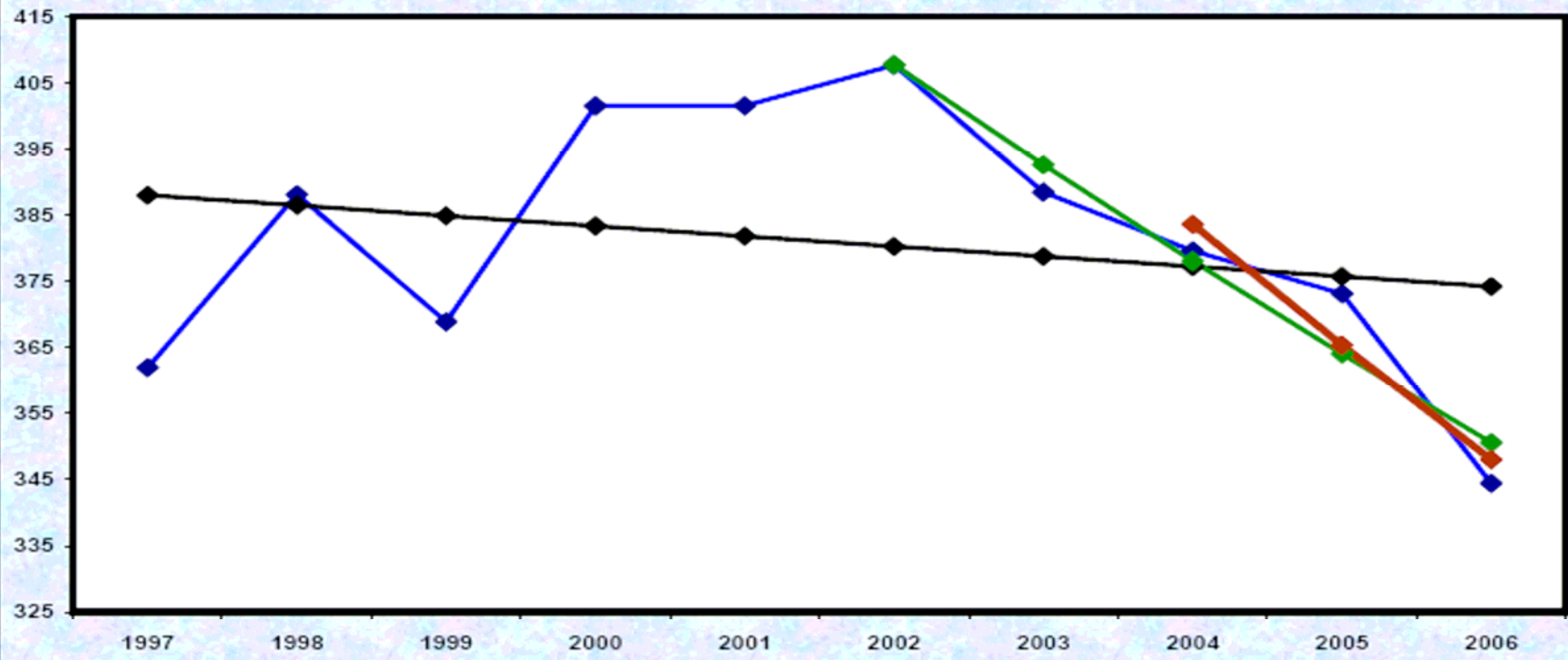
10-pt fit	5-pt fit	3-pt fit
-2.13%	-6.11%	-6.83%

SEVERITY (Typical Policy)



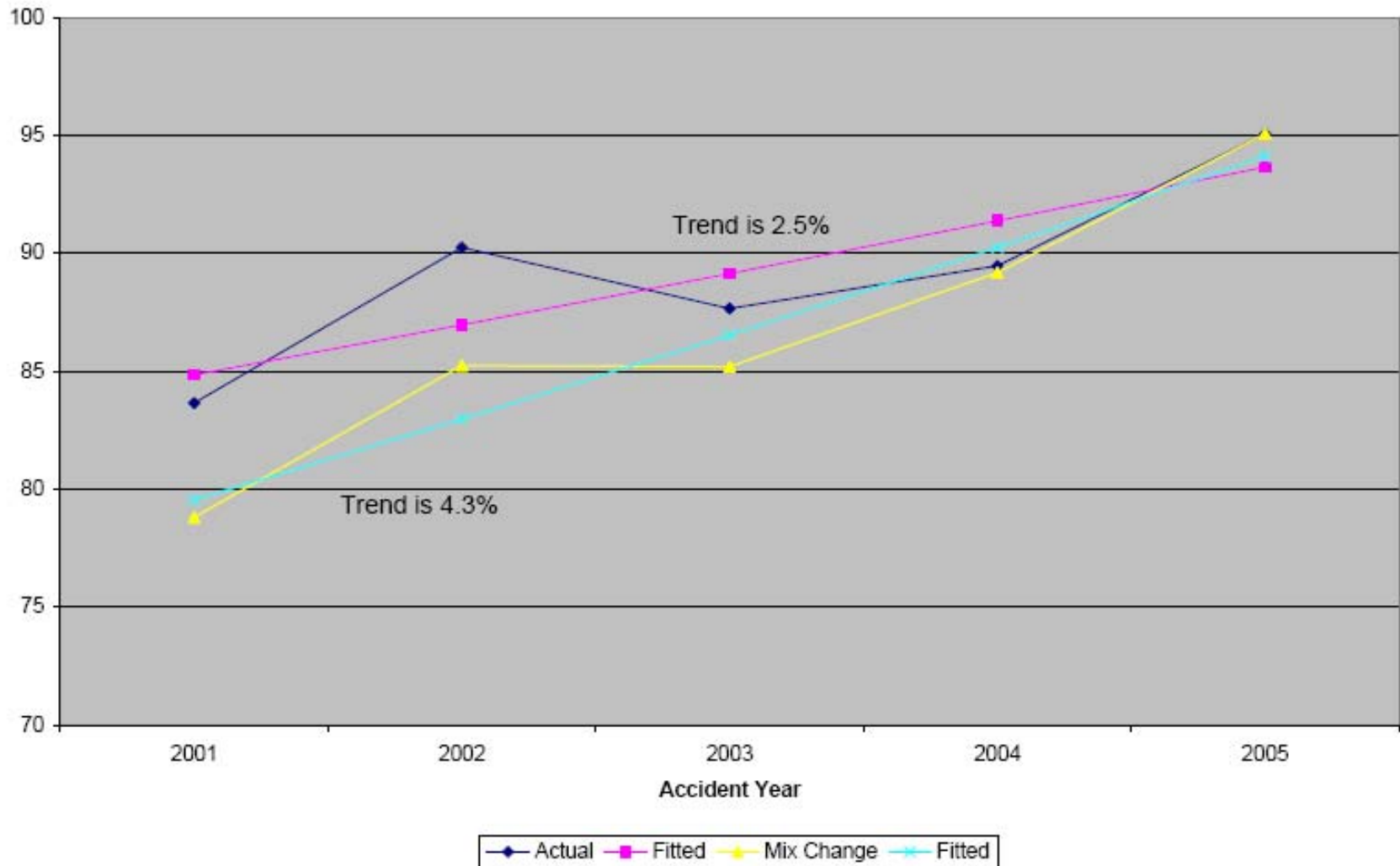
10-pt fit	5-pt fit	3-pt fit
1.77%	2.56%	2.24%

PURE PREMIUM (Typical Policy)

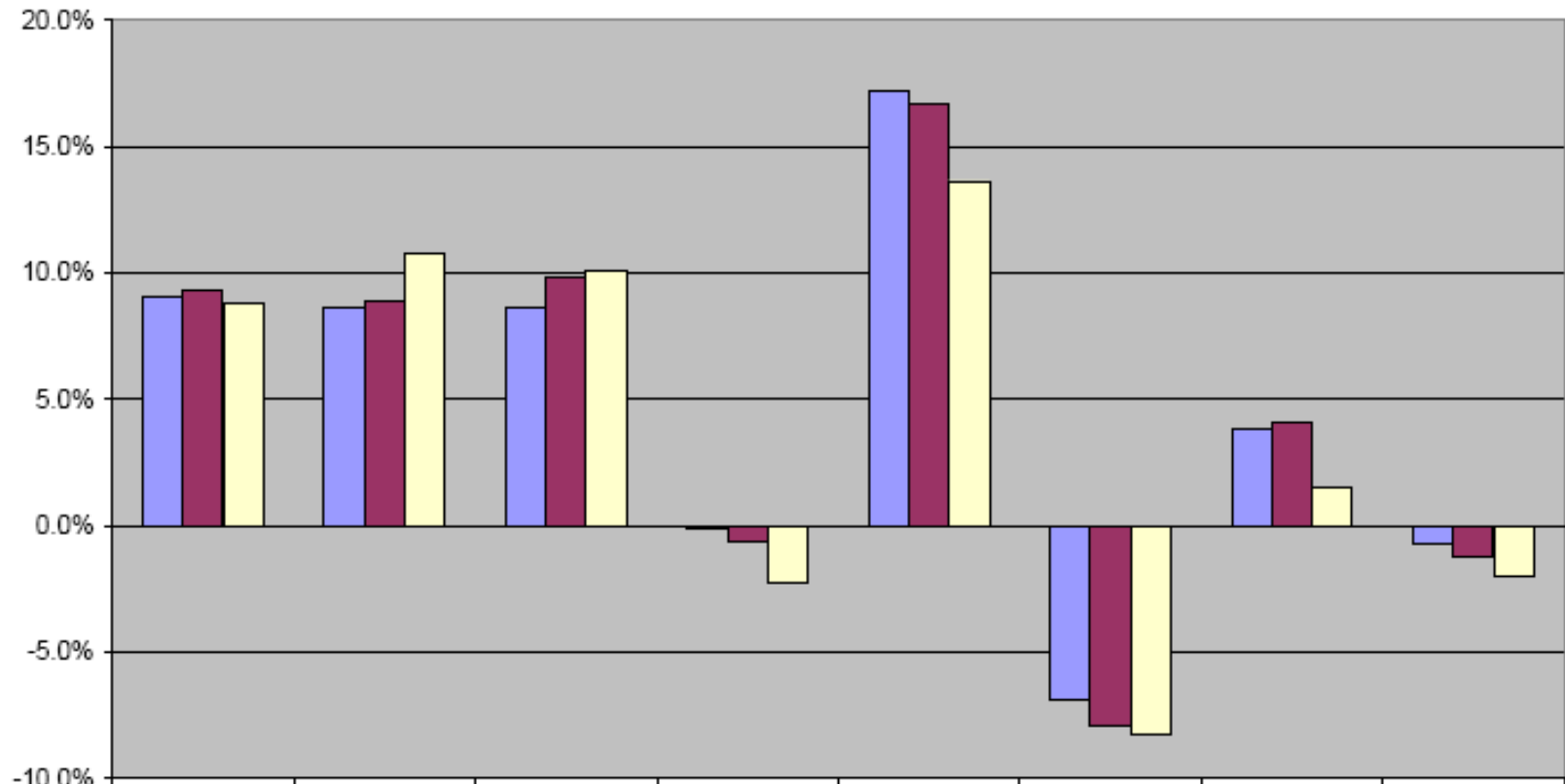


10-pt fit	5-pt fit	3-pt fit
-0.40%	-3.70%	-4.75%

Mix Adjustment Example

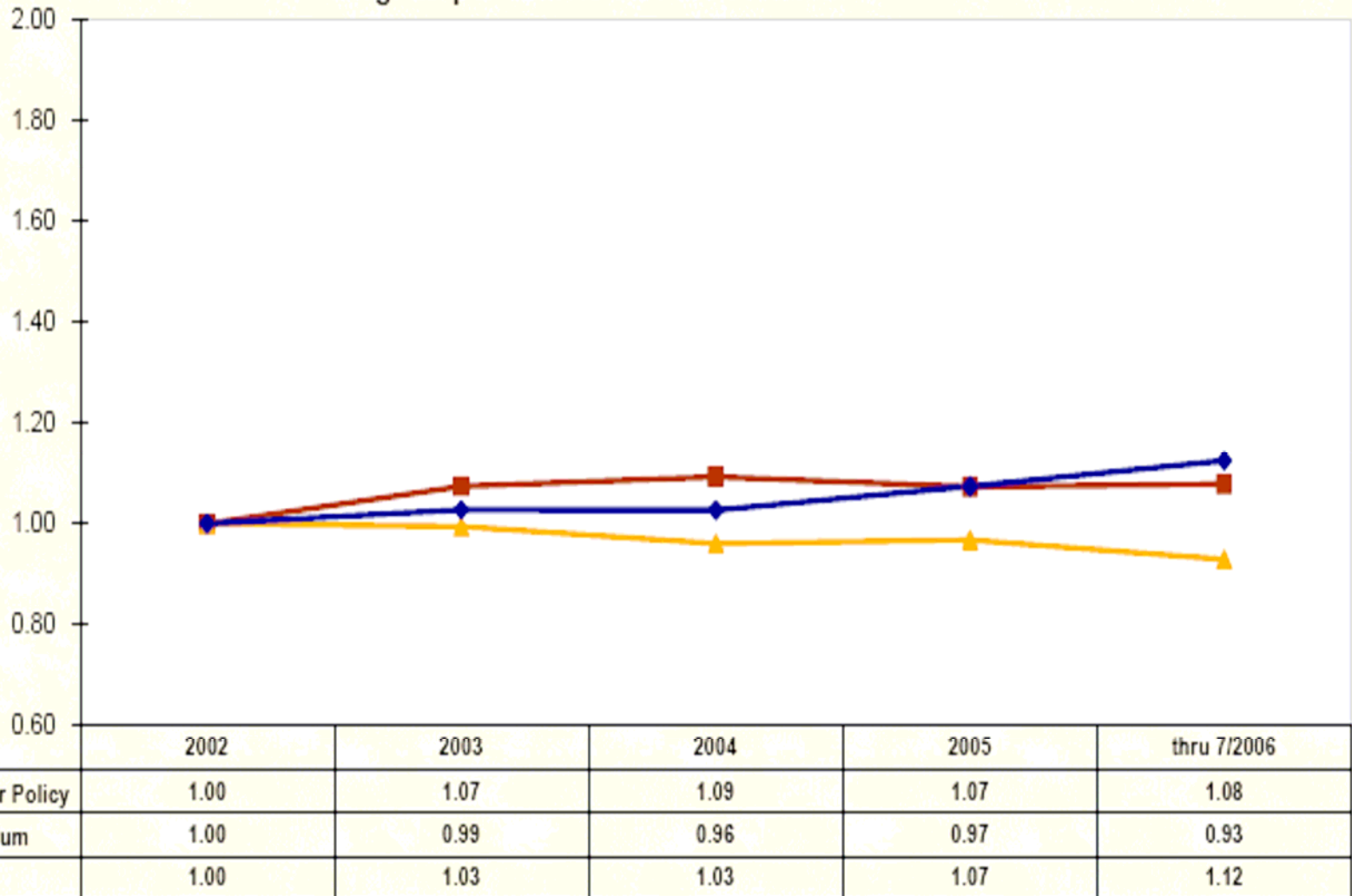


LOB Indication Example

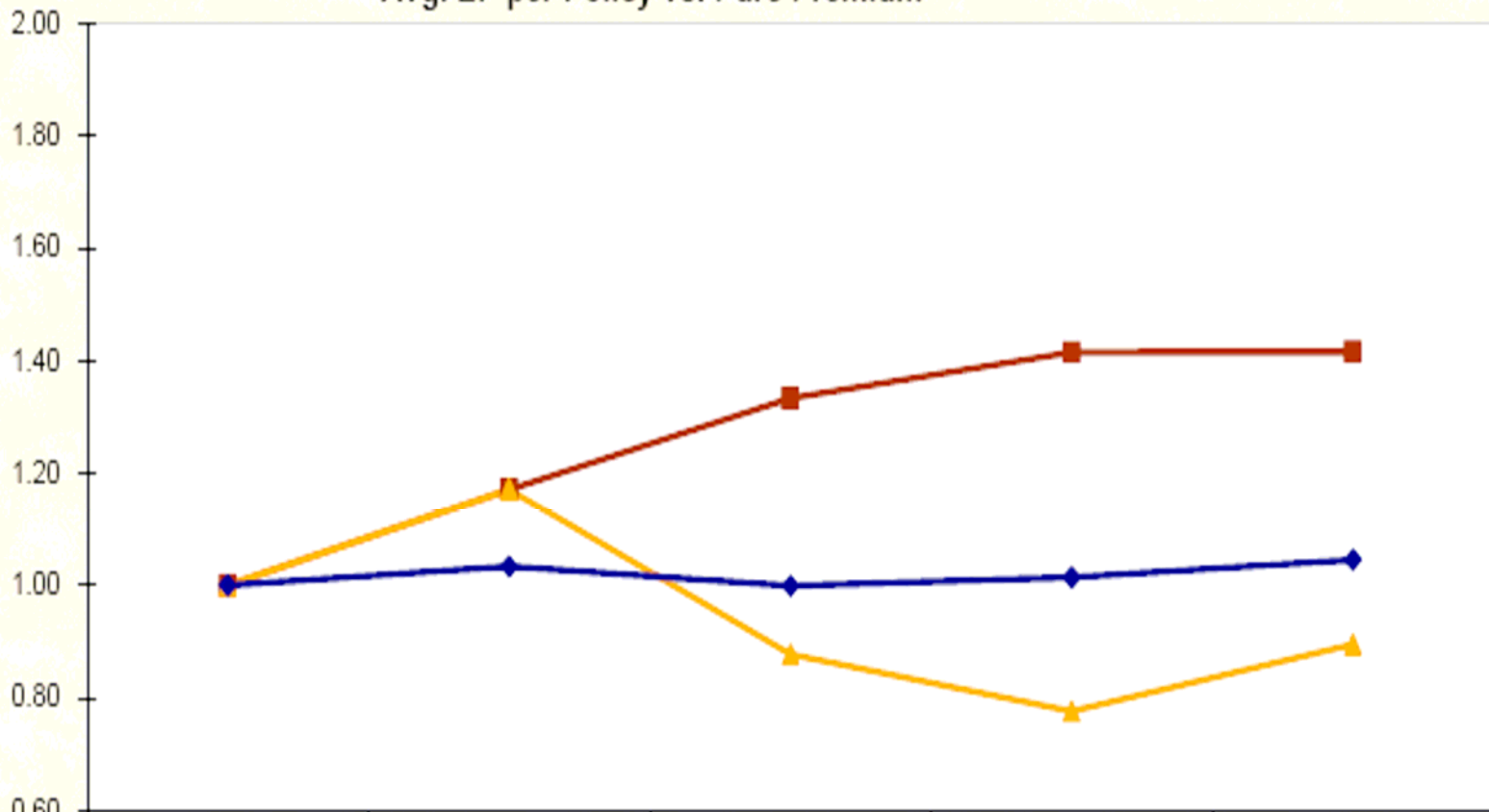


3-Year Indication	9.1%	8.6%	8.6%	-0.1%	17.2%	-6.9%	3.8%	-0.7%
3-Year 20-30-50	9.3%	8.9%	9.8%	-0.6%	16.7%	-7.9%	4.1%	-1.2%
2-Year Indication	8.8%	10.7%	10.1%	-2.3%	13.7%	-8.2%	1.5%	-2.0%

LOB Example Avg. EP per Vehicle vs. Pure Premium



LOB Example Avg. EP per Policy vs. Pure Premium



	2002	2003	2004	2005	thru 7/2006
■ Avg. EP per Policy	1.00	1.17	1.33	1.42	1.42
▲ Pure Premium	1.00	1.17	0.88	0.78	0.90
◆ Policies	1.00	1.03	1.00	1.01	1.05

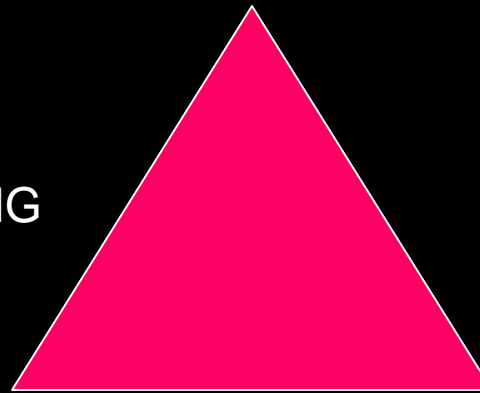
Enterprise Risk Increased or Decreased?

- How is information shared and what's done with it?
- What controls/oversight/opportunity for reconciliation exist?
- Is it a Team Game or a Turf War?

The ERM Connection:

RESERVING

PRICING



PLANNING