



# Loss Reserve Ranges in Practice

CAS Spring Meeting  
June 19, 2007

Thomas M. Mount, ACAS, MAAA  
A.M. Best Company





# Outline



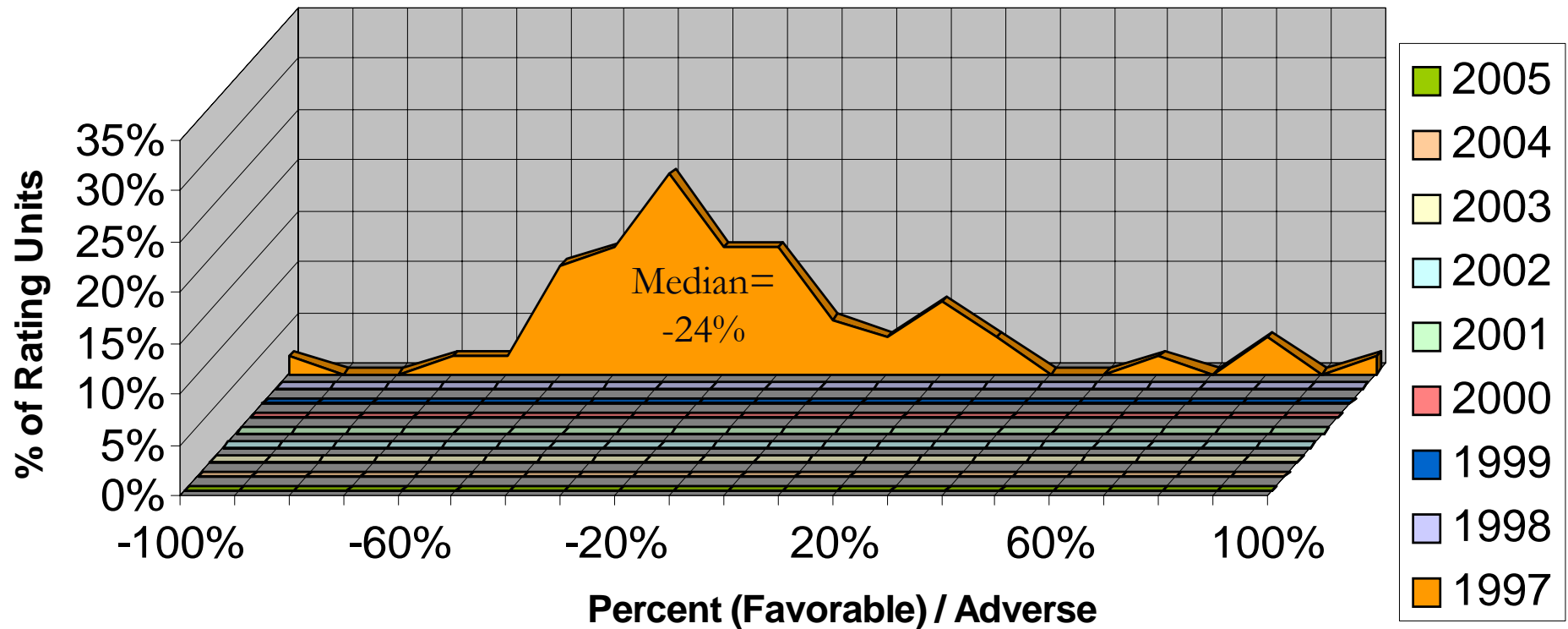
- **Historical Volatility – Schedule P**
- **Reserve Capital Factors**
- **Deficiency Factors**
- **Ranges & Reserve Reviews**
- **Ranges & Statement of Actuarial Opinion**
- **Ranges & Actuarial Opinion Summary**
- **Example Company**



# Schedule P



## Med Mal (CM) Reported Development

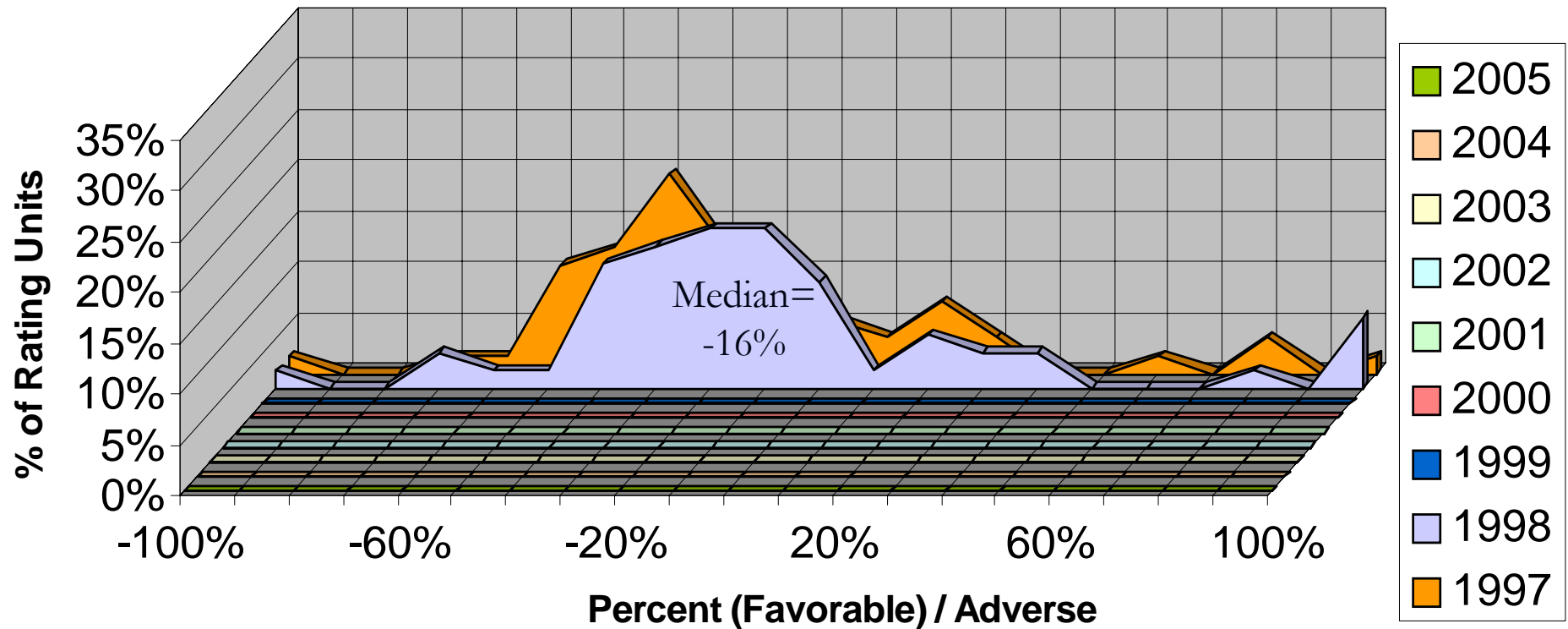




# Schedule P



## Med Mal (CM) Reported Development

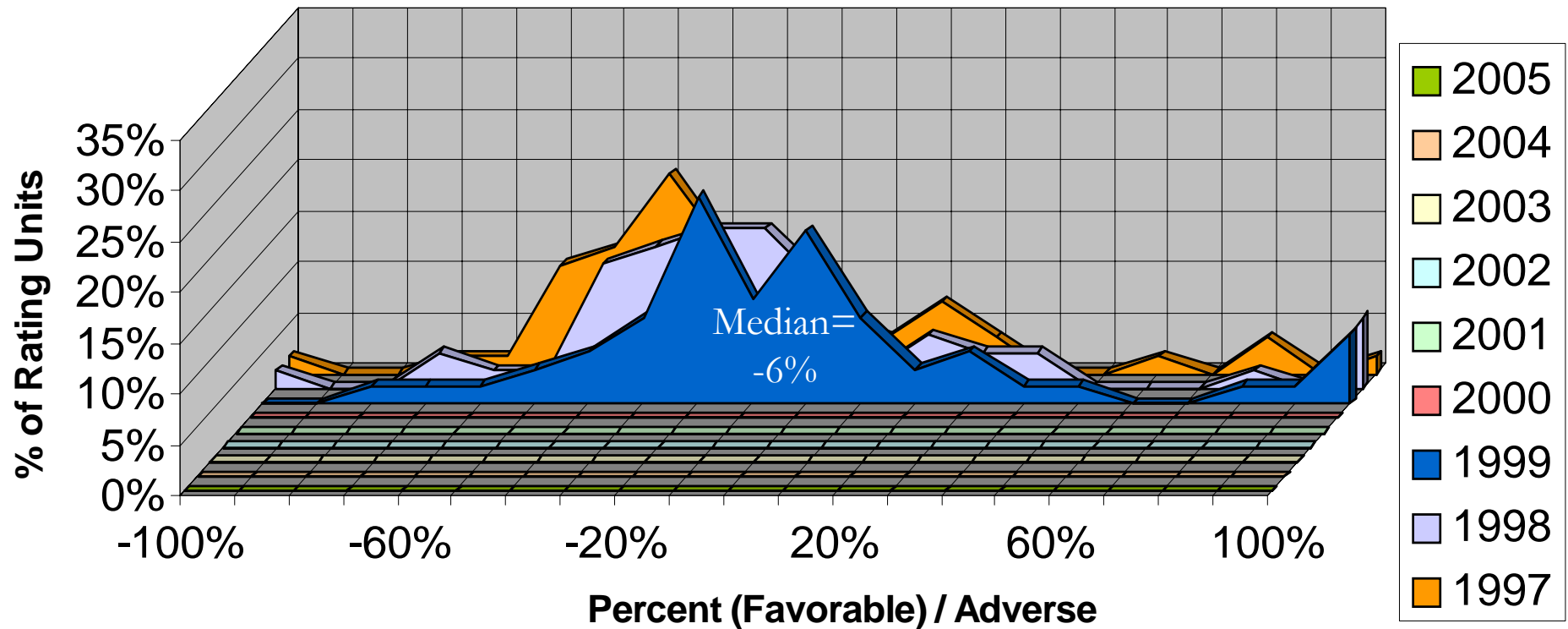




# Schedule P



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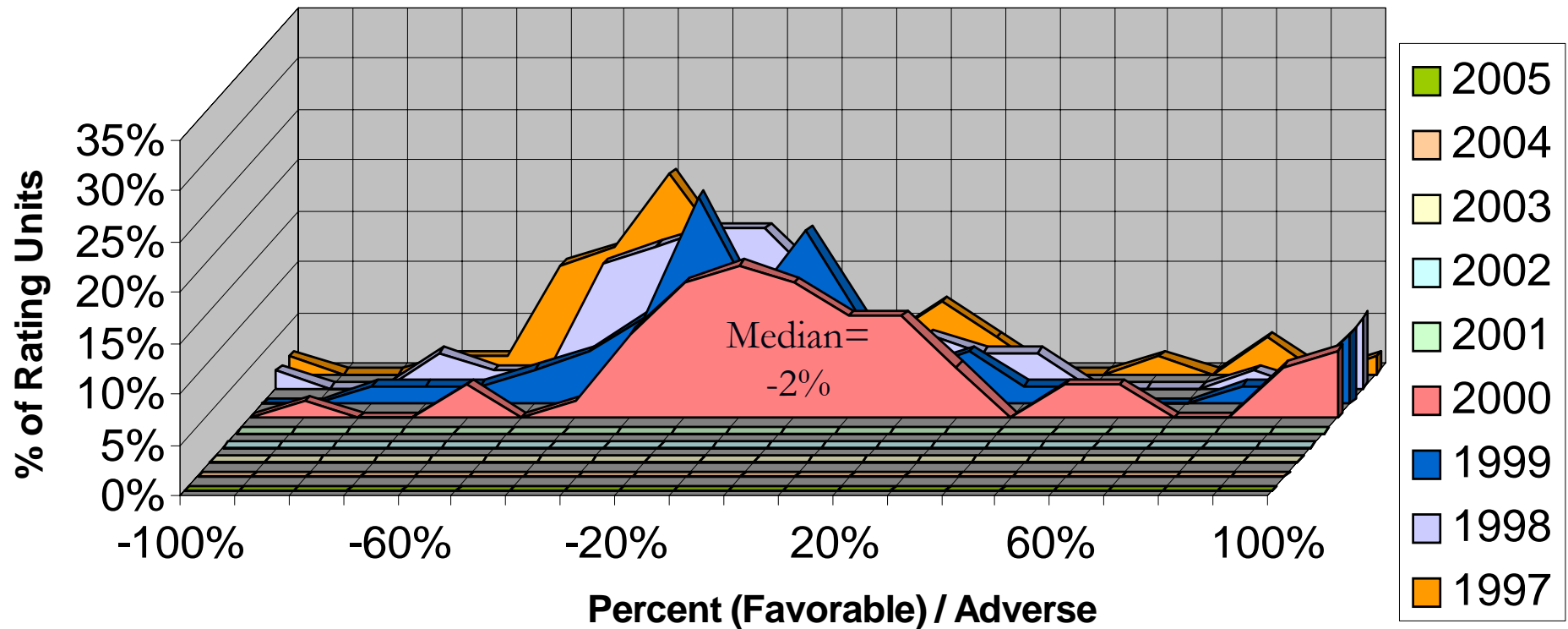




# Schedule P



## Med Mal (CM) Reported Development

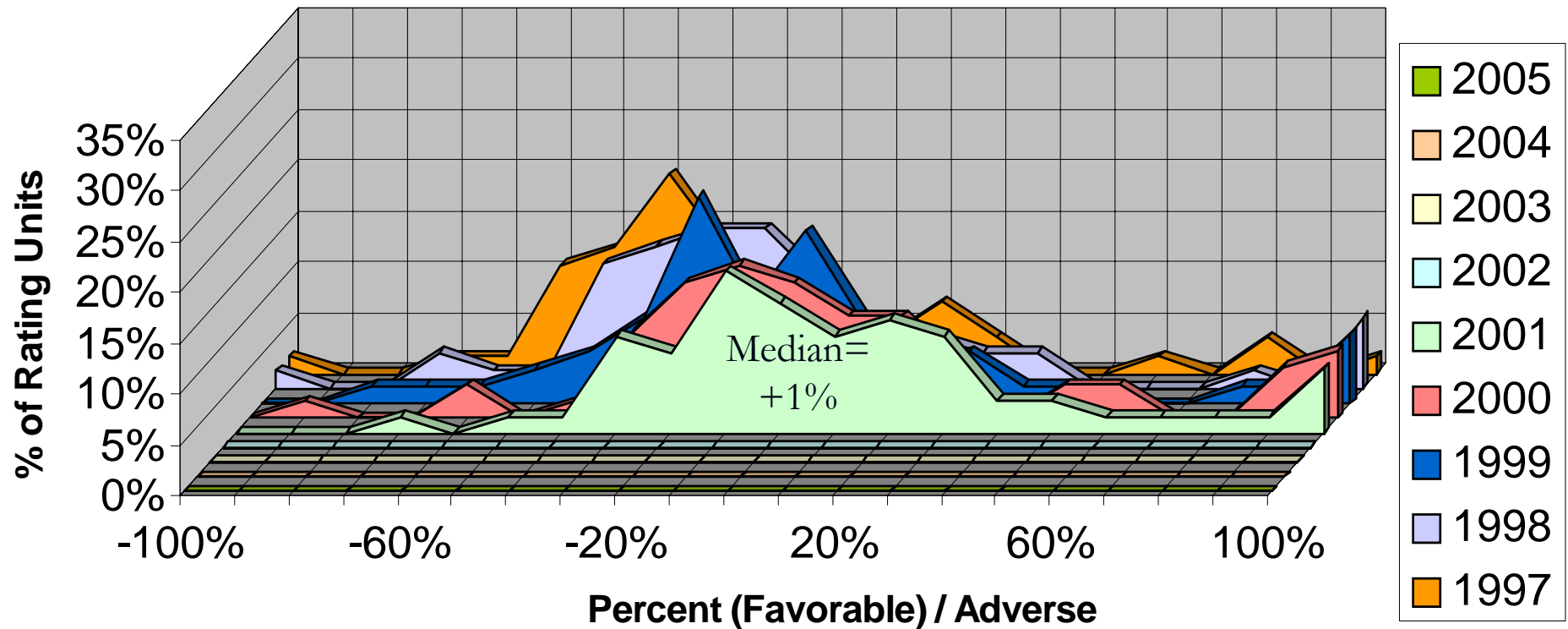




# Schedule P



## Med Mal (CM) Reported Development

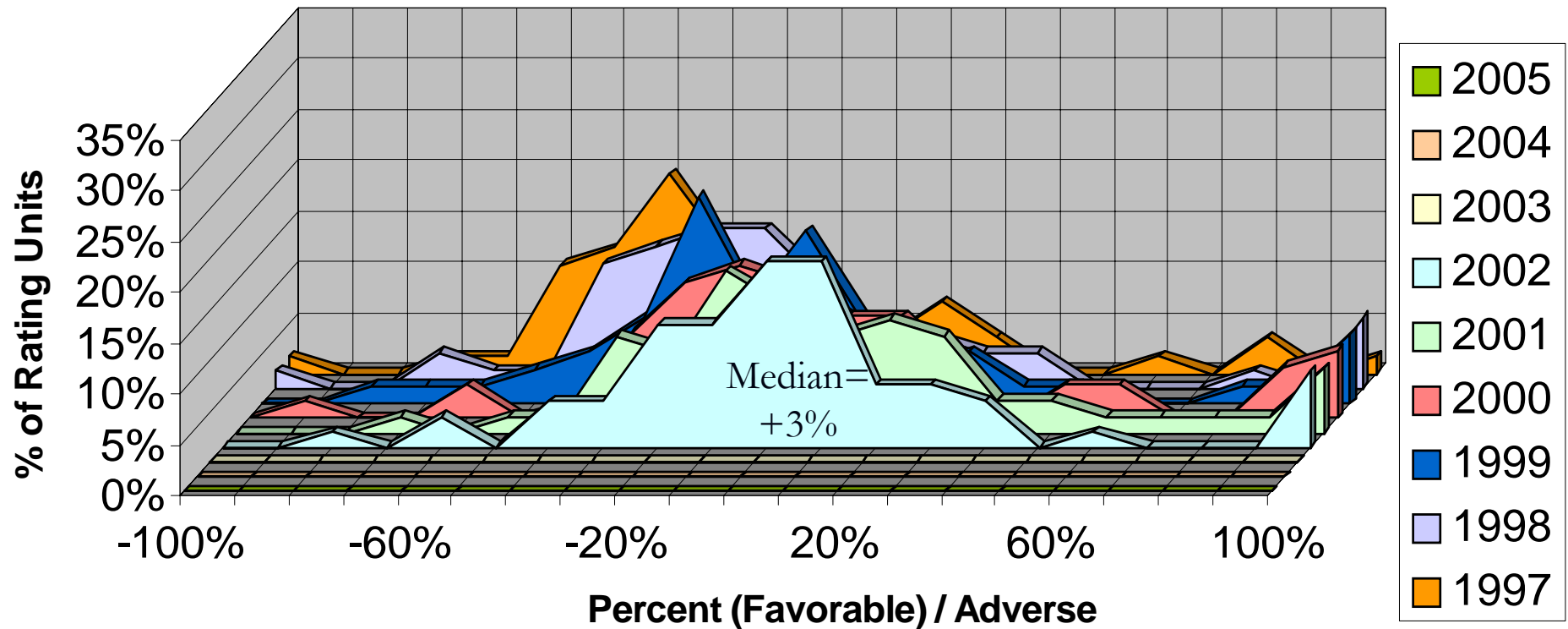




# Schedule P



## Med Mal (CM) Reported Development



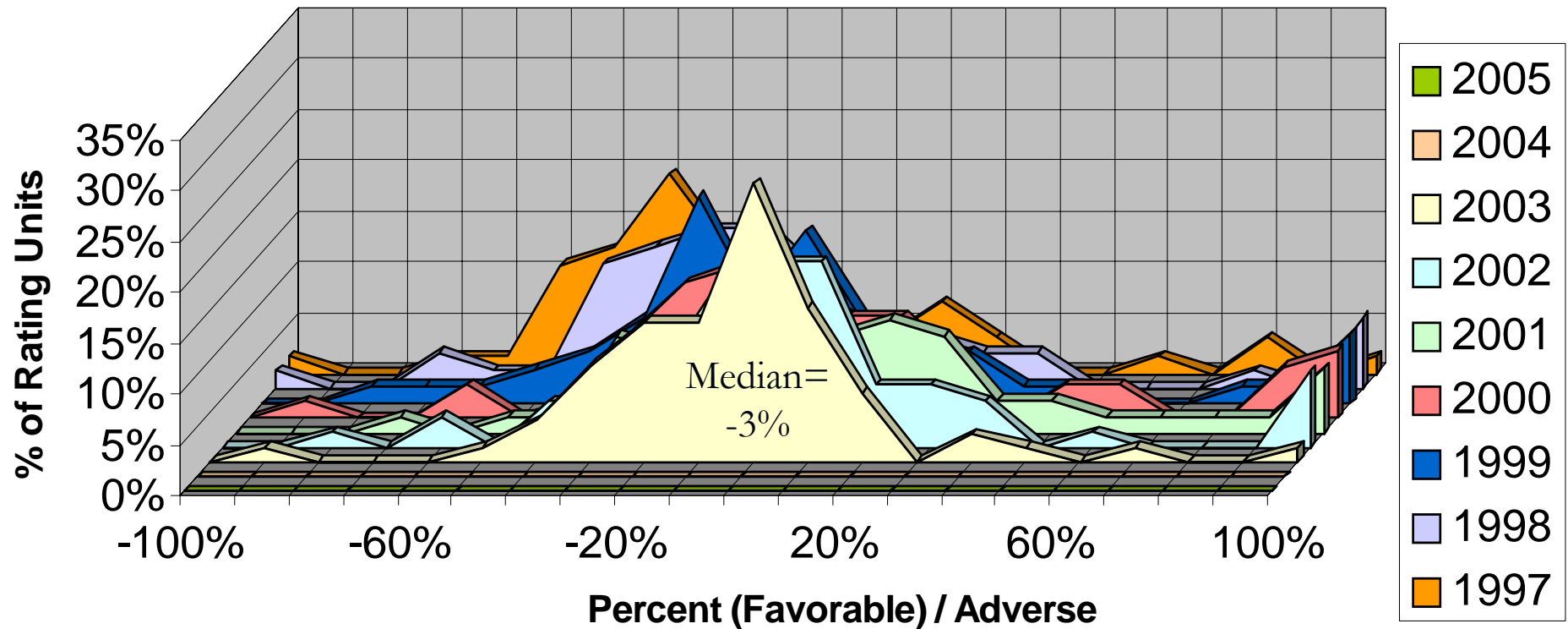




# Schedule P



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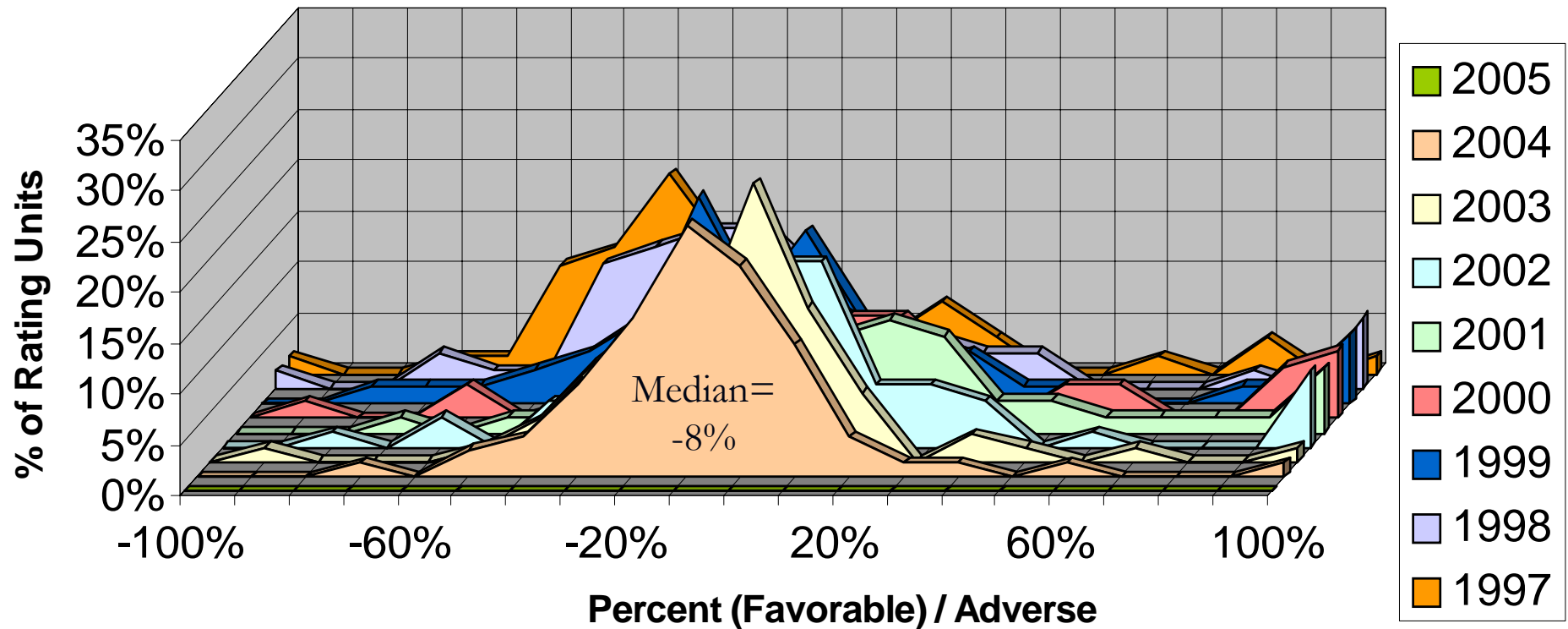




# Schedule P



## Med Mal (CM) Reported Development

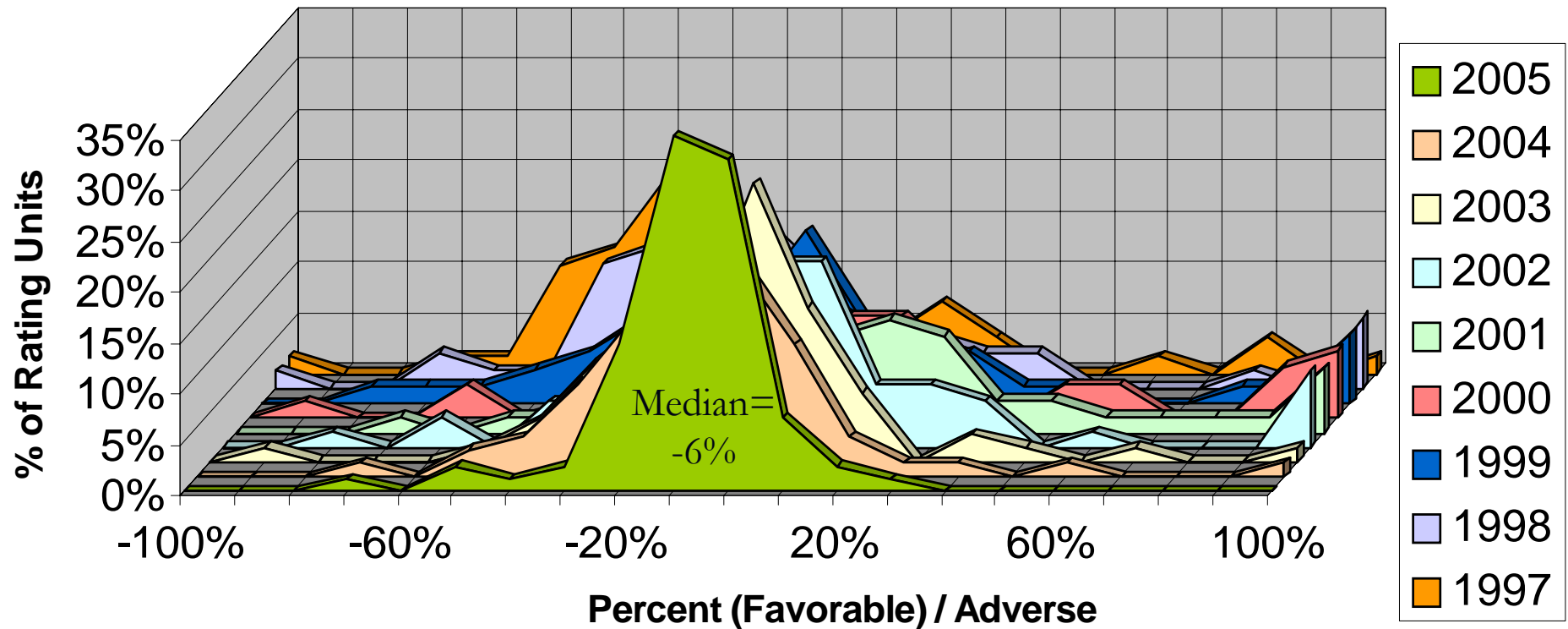




# Schedule P



## Med Mal (CM) Reported Development





# Med Mal (CM) Industry Reserve Development Thru 12/31/06



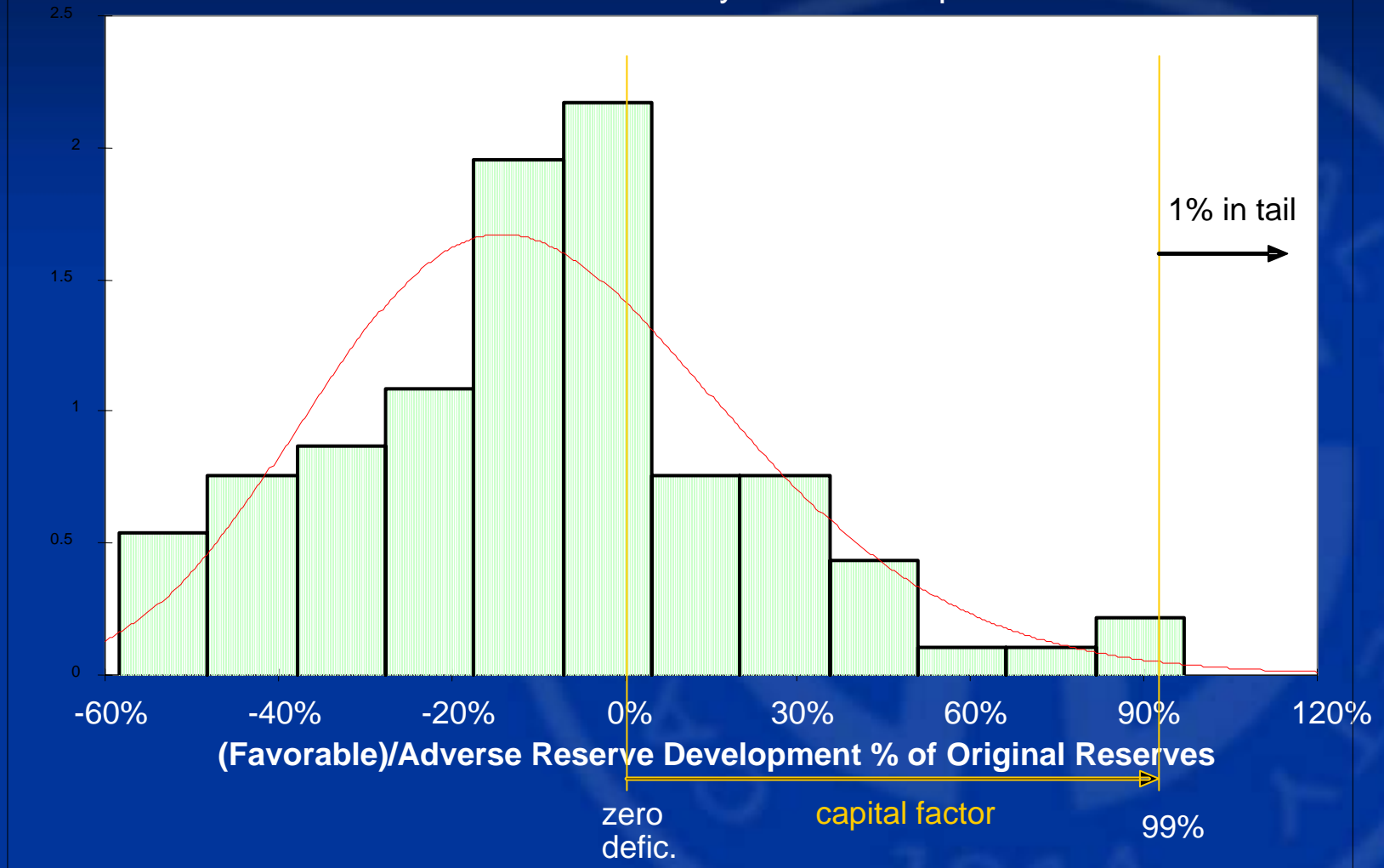
<u>CY End</u>	(Favorable) / <u>Adverse</u>
1997	(9.9%)
1998	1.7%
1999	10.5%
2000	19.2%
2001	16.3%
2002	12.3%
2003	(3.6%)
2004	(6.6%)
2005	(6.1%)



# Reserve Risk



Med Mal Baseline Industry Reserve Capital Factor Calc.

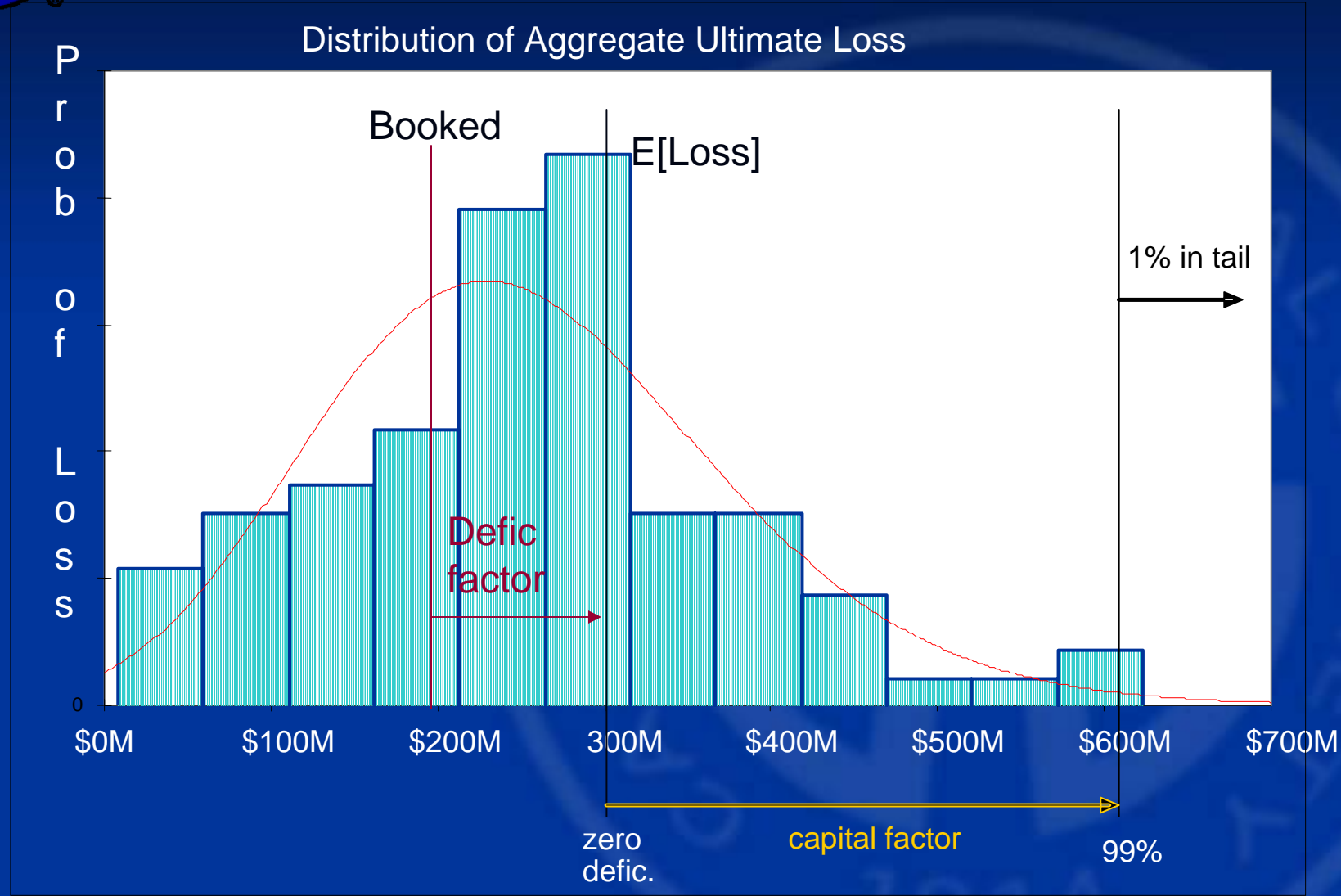




# Reserve Risk The Overlap Fallacy



Distribution of Aggregate Ultimate Loss





## ASOP 36

### Statements of Actuarial Opinion regarding P/C Loss & LAE Reserves

- The actuary may determine a range of **reasonable** reserve estimates that reflects the uncertainties associated with analyzing the reserves
- A Range of **reasonable** estimates is a range of estimates that could be produced by appropriate actuarial methods or alternative sets of assumptions the actuary judges to be **reasonable**





# Reserve Reviews



- Review Analysis for:
  - LDF selections
  - ELR assumptions
  - Frequency/Severity Trend assumptions
  - Methods used to generate indicated ults
  - Selection of ultimates within range of Indicated ultimates
- AMBest will often make its own **reasonable** assumptions and see where carried reserves fall relative to these new indications





# Sample Company



## Indicated Ultimates

<u>AY</u>	<u>Paid LDM</u>	<u>Restated Paid LDM</u>	<u>Incur LDM</u>	<u>Incur B-F</u>	<u>Berquist Sherman</u>	<u>Reported Freq/Sev</u>	<u>CwPay Freq/Sev</u>	<u>Selected</u>
2000	10,700	10,200	10,100	10,100	9,800	NA	NA	10,000
2001	12,100	11,330	11,220	11,220	10,890	NA	NA	11,000
2002	13,915	12,584	12,705	12,705	12,221	12,100	11,858	12,100
2003	17,290	13,965	16,625	15,295	13,965	13,167	13,699	13,300
2004	21,900	19,710	22,630	18,980	16,060	14,308	15,184	14,600
2005	34,615	32,200	38,640	23,345	18,193	15,295	16,905	16,100
2006	38,940	33,630	53,100	21,240	20,532	15,930	18,762	17,700



# Sample Company



## Indicated Difference from Selected Ult

<u>AY</u>	<u>Paid LDM</u>	<u>Restated Paid LDM</u>	<u>Incur LDM</u>	<u>Incur B-F</u>	<u>Berquist Sherman</u>	<u>Reported Freq/Sev</u>	<u>CwPay Freq/Sev</u>
2000	7%	2%	1%	1%	-2%	NA	NA
2001	10%	3%	2%	2%	-1%	NA	NA
2002	15%	4%	5%	5%	1%	0%	-2%
2003	30%	5%	25%	15%	5%	-1%	3%
2004	50%	35%	55%	30%	10%	-2%	4%
2005	115%	100%	140%	45%	13%	-5%	5%
2006	120%	90%	200%	20%	16%	-10%	6%



# Sample Company



<u>AY</u>	<u>Diff from Hi/Lo</u>		<u>Percent of Ult</u>		<u>Percent of Reseves</u>	
	<u>"High"</u>	<u>"Low"</u>	<u>"High"</u>	<u>"Low"</u>	<u>"High"</u>	<u>"Low"</u>
2000	(700)	200	-7%	2%	-140%	40%
2001	(1,100)	110	-10%	1%	-67%	7%
2002	(1,815)	242	-15%	2%	-60%	8%
2003	(3,990)	133	-30%	1%	-67%	2%
2004	(8,030)	292	-55%	2%	-82%	3%
2005	(22,540)	805	-140%	5%	-165%	6%
2006	(35,400)	1,770	-200%	10%	-204%	10%
<b>Total</b>	<b>(73,575)</b>	<b>3,552</b>			<b>-142%</b>	<b>7%</b>



# Sample Company with Revised Assumptions & Distorted Methods Removed



## Indicated Ultimates

<u>AY</u>	<u>Paid LDM</u>	<u>Restated Paid LDM</u>	<u>Incur LDM</u>	<u>Incur B-F</u>	<u>Berquist Sherman</u>	<u>Reported Freq/Sev</u>	<u>CwPay Freq/Sev</u>	<u>Selected</u>
2000	10,700	10,200	10,100	10,100	9,800	NA	NA	10,000
2001	12,100	11,330	11,220	11,220	10,890	NA	NA	11,000
2002	13,915	12,584	12,705	12,705	12,221	12,100	11,858	12,100
2003		13,965		13,965	13,965		14,231	13,300
2004		16,790		16,060	16,060		16,060	14,600
2005		20,125		18,032	18,193		18,515	16,100
2006				20,355	20,532		21,240	17,700



# Sample Company with Revised Assumptions & Distorted Methods Removed



Indicated Difference from Selected Ult

<u>AY</u>	<u>Paid LDM</u>	<u>Restated Paid LDM</u>	<u>Incur LDM</u>	<u>Incur B-F</u>	<u>Berquist Sherman</u>	<u>Reported Freq/Sev</u>	<u>CwPay Freq/Sev</u>
2000	7%	2%	1%	1%	-2%	NA	NA
2001	10%	3%	2%	2%	-1%	NA	NA
2002	15%	4%	5%	5%	1%	0%	-2%
2003		5%		5%	5%		7%
2004		15%		10%	10%		10%
2005		25%		12%	13%		15%
2006				15%	16%		20%



# Sample Company with Revised Assumptions & Distorted Methods Removed



<u>AY</u>	<u>Diff from Hi/Lo</u>		<u>Percent of Ult</u>		<u>Percent of Reseves</u>	
	<u>"High"</u>	<u>"Low"</u>	<u>"High"</u>	<u>"Low"</u>	<u>"High"</u>	<u>"Low"</u>
2000	(700)	200	-7%	2%	-140%	40%
2001	(1,100)	110	-10%	1%	-67%	7%
2002	(1,815)	242	-15%	2%	-60%	8%
2003	(931)	(665)	-7%	-5%	-16%	-11%
2004	(2,190)	(1,460)	-15%	-10%	-22%	-15%
2005	(4,025)	(1,932)	-25%	-12%	-29%	-14%
2006	(3,540)	(2,655)	-20%	-15%	-20%	-15%
<b>Total</b>	<b>(14,301)</b>	<b>(6,160)</b>			<b>-28%</b>	<b>-12%</b>



# Reserve Reviews



- Selection of ultimates within range generates deficiency
- Selection of ultimates within range reflects management reserving philosophy
- Indicated ultimates give insight into reserve range & potential volatility





# Actuarial Opinion



- The Appointed Actuary must provide specific Relevant Comment paragraphs to address the Risk of Material Adverse Deviation (RMAD)
  - Explicitly state whether the actuary reasonably believes there are significant risks and uncertainties that could result in material adverse deviation
  - Materiality Standard
  - Basis for establishing the materiality standard
  - If RMAD exists, describe major factors/conditions underlying the risks that could result in MAD





# Actuarial Opinion Summary



- December 2006 Property Casualty Practice Note on Statements of Actuarial Opinion says the Actuarial Opinion Summary (AOS) should include the following (Gross & Net):
  - A) Appointed Actuary's Range of Reasonable estimates, and/or
  - B) Appointed Actuary's point estimates, and
  - C) Company's recorded reserves, and
  - D) Difference between recorded & point and/or difference between recorded and range, and
  - E) If 1-yr adverse devel > 5% in 3 out of last 5 CYs, as measured in sched P Part 2, explicit description of reserve elements and management decisions that were major contributors



# Sample Company



- **Actuarial Reserve Review states**
  - Reasonable Range is -5% to +5%
- **Actuarial Opinion states**
  - Reserves make for a reasonable provision
  - Contingent on future events, actual may vary significantly from expected, no provision for extraordinary events
  - Risk of Material Adverse Deviation exists
    - Standard is 10% of reserves
    - Issues are growth, case reserve strengthening, new claims handling philosophy
- **Actuarial Opinion Summary states**
  - Point estimate only



# Sample Company



## ■ Actuary States

- My Reserves are adequate!
- Your capital factor is too high!



# Summary



- Reserve Volatility drives Required Capital
- Companies need to understand potential volatility based on other reasonable assumptions
- Need to embrace volatility
- Need to quantify volatility
- Need to report consistently on that volatility