



*Report Card on
Reserve Adequacy –
A+ or C-*

Casualty Loss Reserve Seminar
September 2012

Introductions

Panelists

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Moderator

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Ground-Rules for our Discussion

Including disclaimers

- This presentation is prepared and intended for general educational and discussion purposes only.
- It should not be used as a substitute for consultation with professional advisors.
- The views and opinions expressed by the panelists and moderator may or may not be reflective of their own personal views and opinions; the views and opinions are not expressions of position by their employers.
- Enjoy the exchange of information and ideas.
- Contribute.

Purpose

Loss reserving has been a fundamental element of actuarial practice and financial reporting for insurance companies for many years. The actuarial literature includes countless papers describing methods and data for evaluating unpaid claim estimates. So, while acknowledging that the reserves represent estimates, how well have those estimates performed with the benefit of hindsight?

The panelists will provide perspectives on historical and current reserve adequacy by line of business and facilitate an audience discussion around key drivers -- and whether they are common across lines or relevant to one or a subset of lines. Is the phenomenon of adverse and favorable development of prior estimates pre-destined? Can practitioners improve upon the historical report card?

Agenda

- Historical reserve adequacy
- Reserve development drivers
- Grading the industry
- Perspectives on current reserves

Historical reserve adequacy

Reserve accuracy poll

At year-end 2011, what percentage of US P&C insurance companies' hindsight reserves from year-end 2005 were within -10% to +10% of their originally recorded value?

- a) 76% – isn't it called actuarial “science”?
- b) 52% – but on the other hand, there's loads of judgment
- c) 33% – loads and loads of judgment
- d) 11% – but at least it can't be negative

Reserve accuracy poll

At year-end 2011, what percentage of US P&C insurance companies' hindsight reserves from year-end 2005 were within -10% to +10% of their originally recorded value?

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- b) 52% – but on the other hand, there's loads of judgment
- c) 33% – loads and loads of judgment
- d) 11% – but at least it can't be negative

Percentage of companies with 2011 hindsight reserves within X% of initial recorded reserves

Companies with initial recorded reserves in excess of \$1 million

Calendar Year End	Within +/- 5%	Within +/-10%	Within +/- 25%
2002	14%	29%	63%
2003	19%	34%	67%
2004	19%	36%	65%
2005	16%	33%	65%
2006	15%	31%	65%
2007	13%	29%	67%
2008	20%	41%	73%
2009	27%	46%	79%
2010	41%	64%	88%

Source: SNL, 2011, Individual Company Statutory Statements

Percentage of companies with 2011 hindsight reserves within X% of initial recorded reserves

Companies with initial recorded reserves in excess of \$500 million

Calendar Year End	Within +/- 5%	Within +/-10%	Within +/- 25%
2002	12%	26%	61%
2003	21%	37%	73%
2004	29%	46%	79%
2005	23%	49%	87%
2006	23%	46%	85%
2007	20%	41%	88%
2008	27%	58%	89%
2009	38%	66%	95%
2010	65%	87%	97%

Source: SNL, 2011, Individual Company Statutory Statements

Percentage of companies with 2011 hindsight reserves within X% of initial recorded reserves

Companies with initial recorded reserves in excess of \$500 million, ex 2001 & prior

Calendar Year End	Within +/- 5%	Within +/-10%	Within +/- 25%
2002	33%	63%	81%
2003	27%	51%	89%
2004	24%	42%	85%
2005	20%	39%	83%
2006	17%	33%	81%
2007	17%	37%	85%
2008	19%	48%	87%
2009	25%	64%	94%
2010	64%	86%	97%

Source: SNL, 2011, Individual Company Statutory Statements

Percentage of companies with 2011 hindsight reserves within 10% of initial recorded reserves

Companies with initial recorded reserves in excess of \$1 million – by line of business

Calendar Year End	Within +/-10%					
	All	Other Liab	Med Mal	CMP	WC	PP AL
2002	29%	16%	16%	29%	22%	53%
2003	34%	21%	26%	26%	26%	41%
2004	36%	24%	14%	26%	40%	40%
2005	33%	25%	13%	29%	37%	34%
2006	31%	20%	12%	28%	35%	34%
2007	29%	21%	11%	27%	40%	42%
2008	41%	26%	16%	42%	48%	49%
2009	46%	36%	24%	45%	59%	54%
2010	64%	58%	44%	63%	71%	72%

Source: SNL, 2011, Individual Company Statutory Statements

Calendar year-end hindsight (redundancy)/deficiency

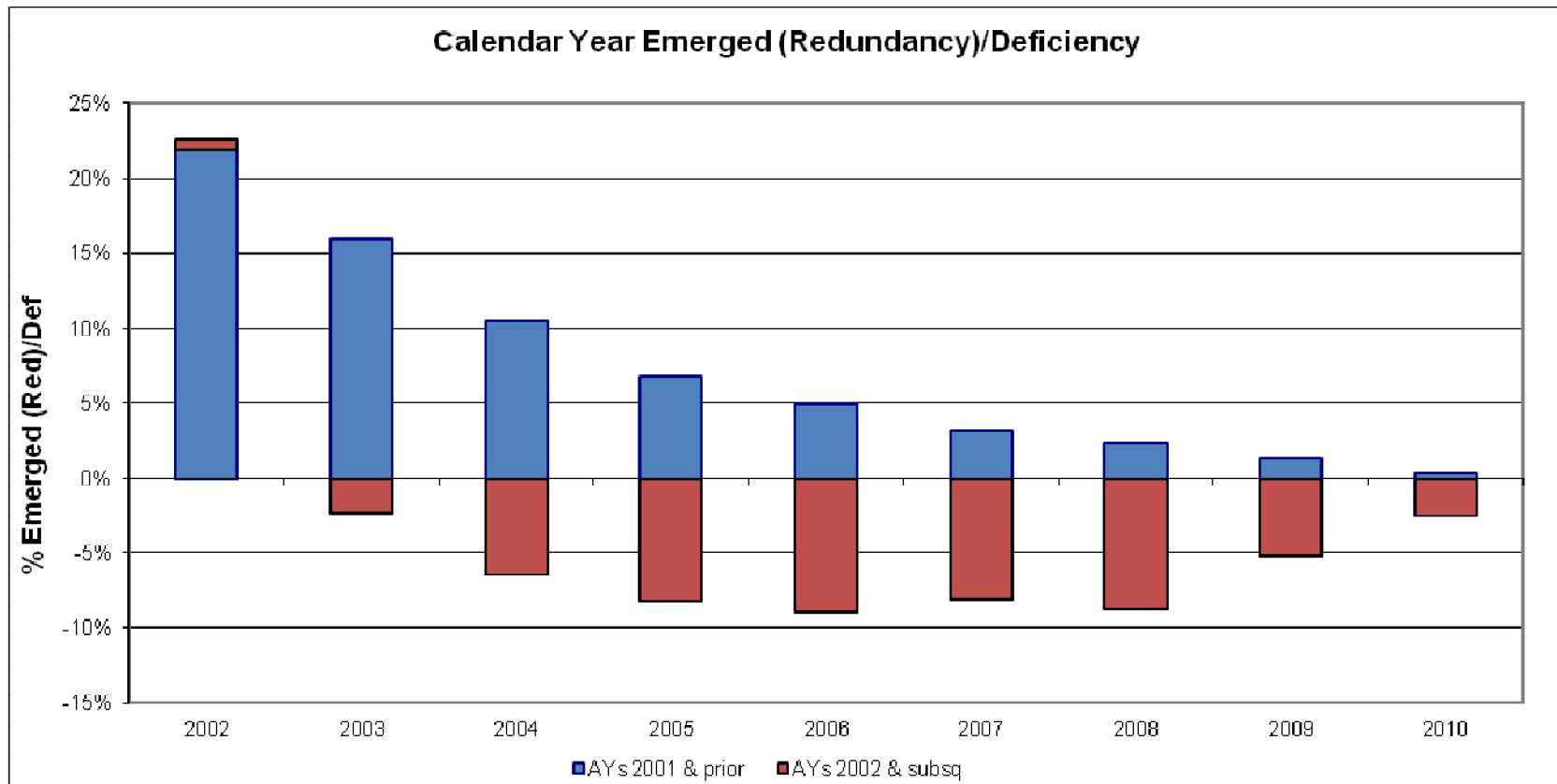
Emerged (redundancy)/deficiency as a % of initial booked reserves

Calendar Year End	All	Other Liab	Med Mal	CMP	WC	PP AL
2002	23%	58%	6%	18%	27%	1%
2003	14%	41%	-7%	7%	20%	-2%
2004	4%	19%	-15%	-3%	11%	-5%
2005	-1%	4%	-21%	-4%	3%	-7%
2006	-4%	-1%	-24%	-10%	0%	-6%
2007	-5%	-4%	-23%	-11%	0%	-5%
2008	-6%	-2%	-19%	-8%	1%	-6%
2009	-4%	-2%	-14%	-6%	0%	-5%
2010	-2%	-2%	-7%	-3%	0%	-3%

Source: SNL, 2011, Individual Company Statutory Statements

Calendar year-end hindsight (redundancy)/deficiency

Emerged (redundancy)/deficiency as a % of initial booked reserves



Source: SNL, 2011, Individual Company Statutory Statements

Accident year hindsight (redundancy)/deficiency

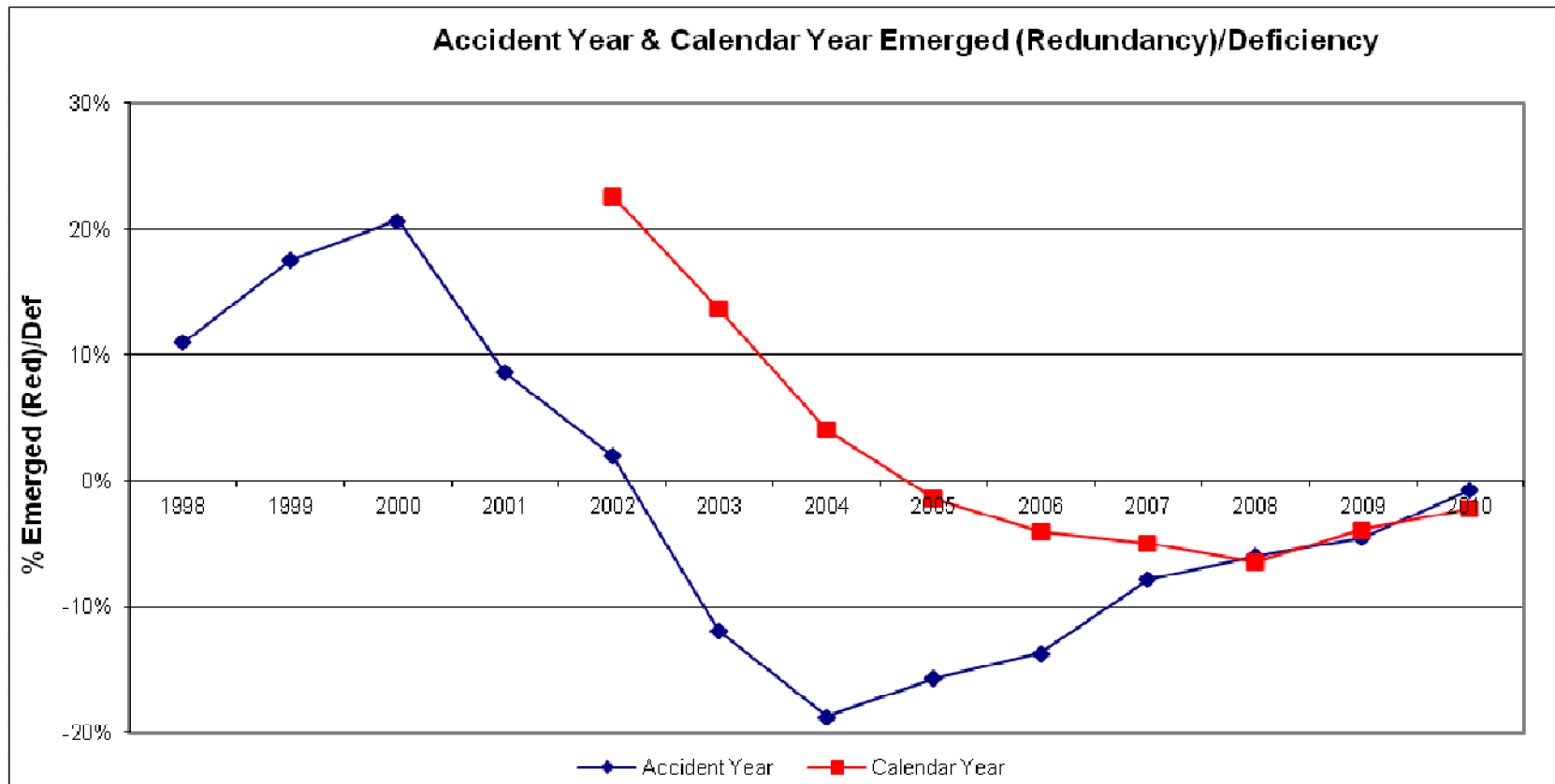
Emerg ed (redundancy)/deficiency as a % of initial booked reserves

Accident Year	All	Other Liab	Med Mal	CMP	WC	PP AL
1998	11%	26%	19%	15%	23%	-4%
1999	18%	47%	24%	17%	32%	0%
2000	21%	44%	28%	23%	34%	2%
2001	9%	27%	16%	4%	21%	-1%
2002	2%	24%	6%	-5%	13%	-3%
2003	-12%	-8%	-18%	-13%	-8%	-9%
2004	-19%	-27%	-30%	-16%	-23%	-11%
2005	-16%	-24%	-29%	-13%	-24%	-9%
2006	-14%	-19%	-30%	-16%	-15%	-6%
2007	-8%	-10%	-24%	-12%	-6%	-4%
2008	-6%	-6%	-14%	-8%	2%	-5%
2009	-4%	-2%	-9%	-4%	0%	-4%
2010	-1%	0%	-5%	0%	5%	-2%

Source: SNL, 2011, Individual Company Statutory Statements

Accident year and calendar year hindsight emergence

Emerged (redundancy)/deficiency as a % of initial booked reserves



Source: SNL, 2011, Individual Company Statutory Statements

Accident year loss ratio development

All Lines of Business Combined

AY	12	24	36	48	60	72	84	96	108	120	Hindsight
1987	0.696										0.655
1988	0.718										0.682
1989	0.767										0.747
1990	0.760										0.727
1991	0.755										0.700
1992	0.800										0.735
1993	0.737										0.671
1994	0.779										0.735
1995	0.732										0.694
1996	0.738										0.715
1997	0.693										0.692
1998	0.715										0.757
1999	0.717										0.783
2000	0.729										0.807
2001	0.768										0.803
2002	0.678										0.686
2003	0.641										0.597
2004	0.630										0.561
2005	0.665										0.604
2006	0.597										0.550
2007	0.638										0.610
2008	0.735										0.710
2009	0.685										0.668
2010	0.684										0.681
2011	0.740										0.740

Source: SNL, 2011, Individual Company Statutory Statements



Accident year loss ratio development

Other Liability

<u>AY</u>	<u>12</u>	<u>24</u>	<u>36</u>	<u>48</u>	<u>60</u>	<u>72</u>	<u>84</u>	<u>96</u>	<u>108</u>	<u>120</u>	<u>Hindsight</u>
1998	0.775										0.953
1999	0.758										1.065
2000	0.764										1.043
2001	0.840										1.038
2002	0.710										0.854
2003	0.685										0.637
2004	0.673										0.507
2005	0.643										0.505
2006	0.638										0.531
2007	0.661										0.603
2008	0.688										0.653
2009	0.693										0.683
2010	0.683										0.683
2011	0.678										0.678

Source: SNL, 2011, Individual Company Statutory Statements

Accident year loss ratio development

Medical Malpractice

<u>AY</u>	<u>12</u>	<u>24</u>	<u>36</u>	<u>48</u>	<u>60</u>	<u>72</u>	<u>84</u>	<u>96</u>	<u>108</u>	<u>120</u>	<u>Hindsight</u>
1998	1.106										1.311
1999	1.040										1.282
2000	0.944										1.193
2001	1.030										1.187
2002	0.976										1.031
2003	0.894										0.741
2004	0.824										0.584
2005	0.782										0.558
2006	0.771										0.548
2007	0.759										0.580
2008	0.752										0.651
2009	0.783										0.715
2010	0.791										0.755
2011	0.793										0.793

Source: SNL, 2011, Individual Company Statutory Statements

Accident year loss ratio development

Commercial Multiple Peril

<u>AY</u>	<u>12</u>	<u>24</u>	<u>36</u>	<u>48</u>	<u>60</u>	<u>72</u>	<u>84</u>	<u>96</u>	<u>108</u>	<u>120</u>	<u>Hindsight</u>
1998	0.738										0.803
1999	0.736										0.809
2000	0.712										0.808
2001	0.746										0.766
2002	0.603										0.585
2003	0.560										0.512
2004	0.587										0.526
2005	0.614										0.560
2006	0.528										0.473
2007	0.549										0.506
2008	0.691										0.660
2009	0.604										0.590
2010	0.639										0.639
2011	0.747										0.747

Source: SNL, 2011, Individual Company Statutory Statements

Accident year loss ratio development

Workers' Compensation

<u>AY</u>	<u>12</u>	<u>24</u>	<u>36</u>	<u>48</u>	<u>60</u>	<u>72</u>	<u>84</u>	<u>96</u>	<u>108</u>	<u>120</u>	<u>Hindsight</u>
1998	0.765										0.895
1999	0.785										0.973
2000	0.767										0.962
2001	0.747										0.868
2002	0.708										0.783
2003	0.720										0.672
2004	0.703										0.570
2005	0.690										0.552
2006	0.681										0.599
2007	0.701										0.669
2008	0.717										0.727
2009	0.742										0.745
2010	0.773										0.802
2011	0.773										0.773

Source: SNL, 2011, Individual Company Statutory Statements



Accident year loss ratio development

Private Passenger Auto Liability

<u>AY</u>	<u>12</u>	<u>24</u>	<u>36</u>	<u>48</u>	<u>60</u>	<u>72</u>	<u>84</u>	<u>96</u>	<u>108</u>	<u>120</u>	<u>Hindsight</u>
1998	0.715										0.698
1999	0.750										0.748
2000	0.790										0.799
2001	0.784										0.780
2002	0.760										0.745
2003	0.709										0.672
2004	0.677										0.634
2005	0.670										0.632
2006	0.658										0.635
2007	0.688										0.671
2008	0.694										0.675
2009	0.728										0.711
2010	0.732										0.722
2011	0.716										0.716

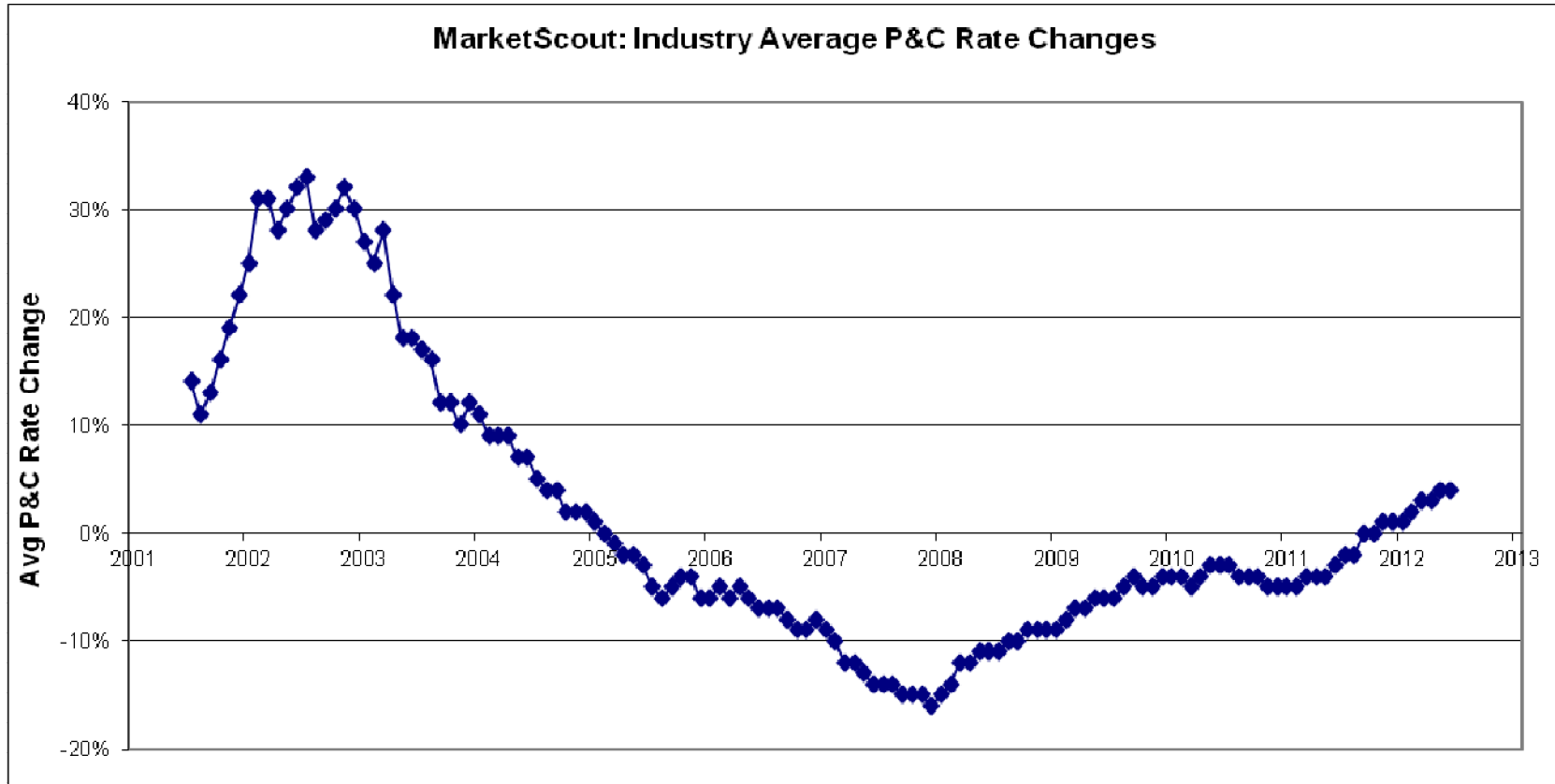
Source: SNL, 2011, Individual Company Statutory Statements

Reserve development drivers

What are the drivers of reserve development?

1. Organic development
2. Underwriting cycle
3. Connection of reserving cycle to pricing cycle
4. Optimism/pessimism
5. Regulation

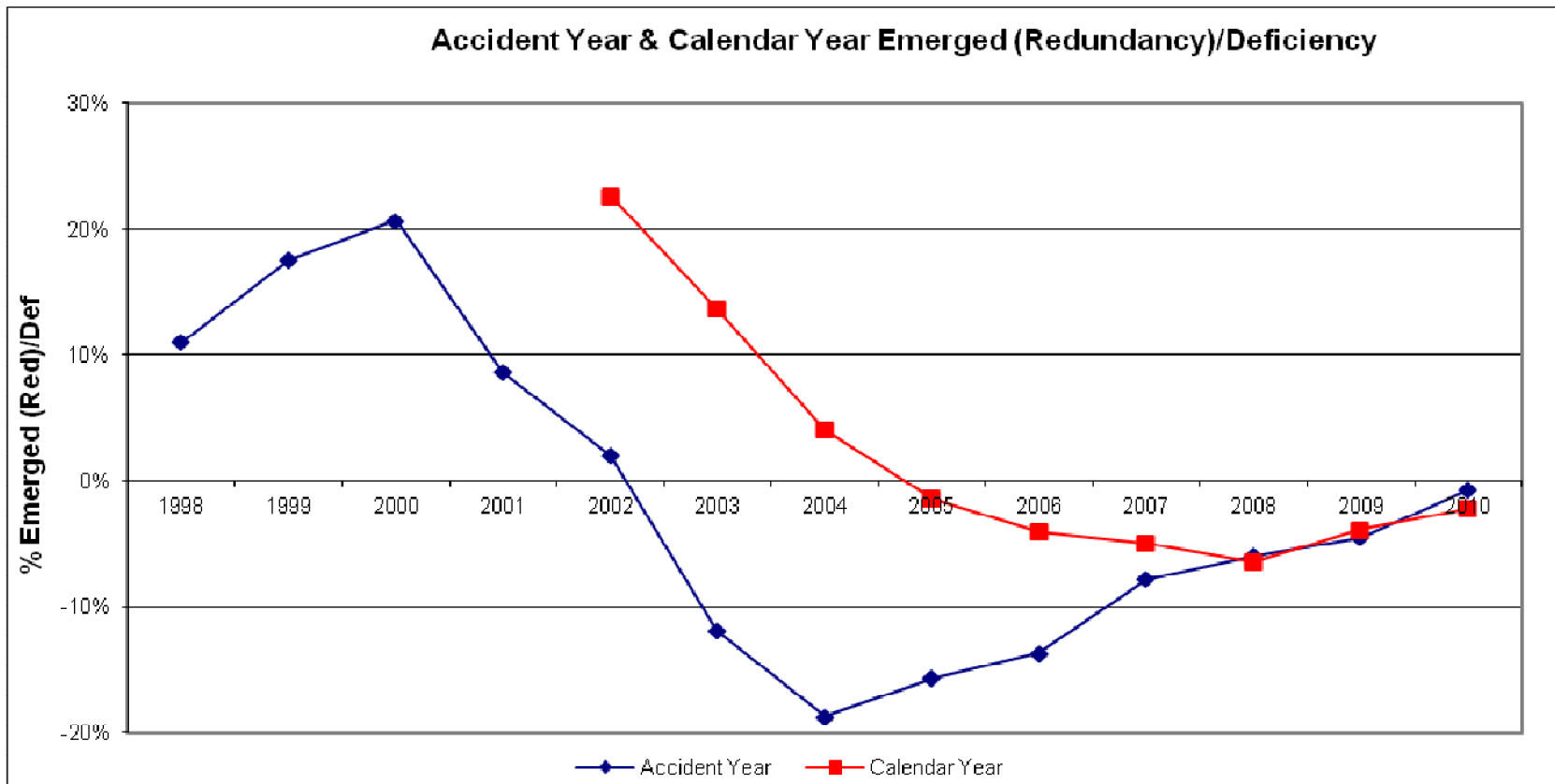
Industry average rate changes



Source: www.MarketScout.com

Accident year and calendar year hindsight emergence

Emerged (redundancy)/deficiency as a % of initial booked reserves



Source: SNL, 2011, Individual Company Statutory Statements

How does the underwriting cycle impact reserves?

**Pricing
Bias**



**Potential
Reserving
Bias**

How does reserve adequacy impact pricing?

**Pricing
Bias**



**Potential
Reserving
Bias**

Inherent link?

**Pricing
Bias**



**Potential
Reserving
Bias**

The current market

- Lengthy soft market
 - Potentially inadequate rates on recent accident years
 - Possible optimistic pricing & reserving
- 5 consecutive years of reserve take-downs
 - Calendar year operating results propped up by prior year releases
 - Releases mask accident year profitability issues
 - Erosion of reserve redundancies
- Weak macro-economic environment
 - Low investment income

Grading the industry

Grading the industry development

- Inspect distribution of companies' reserve development by line of business
- Grade the industry development based on ranges of development

Distribution of Company Reserve Development

All Lines of Business Combined

			2002	2003	2004	2005	2006	2007	2008	2009	2010
Reserve Development											
<u>low</u>	<u>high</u>	<u>grade</u>	<i>Distribution of companies to grade ranges</i>								
-100%	-25%	F-	145	209	270	321	342	328	252	166	72
-25%	-20%	E-	49	67	97	104	139	87	89	87	36
-20%	-15%	D-	56	73	108	123	113	155	130	116	70
-15%	-10%	C-	64	94	85	133	165	223	168	208	162
-10%	-5%	B-	96	118	176	203	221	205	285	263	282
-5%	5%	A	185	267	284	252	219	216	321	449	698
5%	10%	B	95	95	79	52	45	57	63	59	91
10%	15%	C	89	59	51	50	51	44	59	62	40
15%	20%	D	85	97	50	41	37	47	28	20	19
20%	25%	E	102	55	31	26	18	24	16	12	7
25%	100%	F	265	156	117	87	75	66	60	59	41
			1231	1290	1348	1392	1425	1452	1471	1501	1518
<i>Industry development & associated grade</i>											
			22.6%	13.7%	4.1%	-1.4%	-4.0%	-5.0%	-6.6%	-4.0%	-2.4%
			E	C	A	A	A	A	B-	A	A

Source: SNL, 2011, Individual Company Statutory Statements

Distribution of Company Reserve Development

Other Liability

		2002	2003	2004	2005	2006	2007	2008	2009	2010	
Reserve Development											
<u>low</u>	<u>high</u>	<i>Distribution of companies to grade ranges</i>									
-100%	-25%	F-	68	85	115	129	139	130	114	79	33
-25%	-20%	E-	8	13	25	27	35	50	43	39	17
-20%	-15%	D-	8	27	21	43	137	126	61	50	33
-15%	-10%	C-	20	24	34	69	42	54	124	109	61
-10%	-5%	B-	11	16	29	56	37	48	49	80	145
-5%	5%	A	43	50	110	91	59	63	74	143	241
5%	10%	B	24	43	15	19	12	23	41	28	30
10%	15%	C	11	19	56	36	26	13	19	25	27
15%	20%	D	30	45	21	6	15	23	15	19	11
20%	25%	E	46	11	9	6	16	19	25	11	6
25%	100%	F	210	175	105	85	63	45	41	29	9
			479	508	540	567	581	594	606	612	613

Industry development & associated grade

58.2%	40.4%	18.5%	4.2%	-1.4%	-3.5%	-1.5%	-1.5%	-1.8%
F	F	D	A	A	A	A	A	A

Source: SNL, 2011, Individual Company Statutory Statements

Distribution of Company Reserve Development

Medical Malpractice

		2002	2003	2004	2005	2006	2007	2008	2009	2010	
Reserve Development											
<u>low</u>	<u>high</u>	<u>grade</u>	<i>Distribution of companies to grade ranges</i>								
-100%	-25%	F-	31	52	82	100	116	108	92	69	18
-25%	-20%	E-	3	15	7	6	21	16	23	22	9
-20%	-15%	D-	9	16	4	14	8	8	15	17	27
-15%	-10%	C-	8	4	13	7	7	22	21	31	38
-10%	-5%	B-	7	6	9	15	3	8	8	17	41
-5%	5%	A	16	9	11	9	12	9	18	35	50
5%	10%	B	4	28	4	9	9	6	9	2	13
10%	15%	C	3	1	0	3	19	15	10	6	6
15%	20%	D	4	1	6	15	0	2	0	1	4
20%	25%	E	4	0	21	1	2	2	2	3	2
25%	100%	F	62	31	17	12	6	7	10	10	8
			151	163	174	191	203	203	208	213	216

Industry development & associated grade

6.7%	-6.5%	-14.4%	-20.4%	-23.8%	-23.2%	-19.2%	-14.3%	-7.1%
B	B-	C-	E-	E-	E-	D-	C-	B-

Source: SNL, 2011, Individual Company Statutory Statements

Distribution of Company Reserve Development

Commercial Multiple Peril

			2002	2003	2004	2005	2006	2007	2008	2009	2010
			Reserve Development								
<u>low</u>	<u>high</u>	<u>grade</u>	<i>Distribution of companies to grade ranges</i>								
-100%	-25%	F-	46	53	61	88	128	89	68	48	25
-25%	-20%	E-	12	18	21	45	19	63	40	34	14
-20%	-15%	D-	11	10	46	20	43	32	46	32	14
-15%	-10%	C-	18	55	33	51	49	68	34	60	41
-10%	-5%	B-	16	18	36	26	32	50	97	60	68
-5%	5%	A	90	65	79	84	77	64	78	129	195
5%	10%	B	23	32	21	16	22	12	24	19	38
10%	15%	C	13	15	23	12	9	16	10	27	10
15%	20%	D	6	25	16	5	13	14	7	4	5
20%	25%	E	11	23	18	22	10	4	3	1	6
25%	100%	F	141	89	61	60	37	27	28	14	8
			387	403	415	429	439	439	435	428	424
			<i>Industry development & associated grade</i>								
			17.6%	6.8%	-2.7%	-4.5%	-10.3%	-11.3%	-8.5%	-6.2%	-2.7%
			D	B	A	A	C-	C-	B-	B-	A

Source: SNL, 2011, Individual Company Statutory Statements

Distribution of Company Reserve Development

Workers' Compensation

			2002	2003	2004	2005	2006	2007	2008	2009	2010
Reserve Development											
<u>low</u>	<u>high</u>	<u>grade</u>	<i>Distribution of companies to grade ranges</i>								
-100%	-25%	F-	36	40	59	93	102	89	45	23	6
-25%	-20%	E-	6	13	37	35	61	24	29	14	7
-20%	-15%	D-	13	34	24	30	27	47	46	29	9
-15%	-10%	C-	27	17	23	41	46	43	34	47	35
-10%	-5%	B-	18	27	46	53	46	65	53	68	68
-5%	5%	A	55	61	94	134	136	150	215	257	330
5%	10%	B	29	43	78	22	27	22	20	24	23
10%	15%	C	22	95	34	26	14	20	25	28	40
15%	20%	D	72	36	30	24	12	17	29	17	11
20%	25%	E	25	18	13	11	15	9	10	3	8
25%	100%	F	158	92	69	53	53	50	37	32	13
			461	476	507	522	539	536	543	542	550
<i>Industry development & associated grade</i>											
			26.5%	19.6%	10.7%	2.7%	0.1%	-0.1%	0.6%	0.4%	0.0%
			F	D	C	A	A	A	A	A	A

Source: SNL, 2011, Individual Company Statutory Statements

Distribution of Company Reserve Development

Private Passenger Auto Liability

			2002	2003	2004	2005	2006	2007	2008	2009	2010
			Reserve Development								
<u>low</u>	<u>high</u>	<u>grade</u>	<i>Distribution of companies to grade ranges</i>								
-100%	-25%	F-	38	42	71	88	72	51	31	16	5
-25%	-20%	E-	15	15	24	34	39	20	32	11	6
-20%	-15%	D-	26	47	52	63	66	77	45	33	20
-15%	-10%	C-	40	88	94	83	93	88	83	103	35
-10%	-5%	B-	73	90	105	92	77	76	124	90	122
-5%	5%	A	150	125	90	83	110	130	131	189	226
5%	10%	B	59	18	33	26	18	27	13	19	63
10%	15%	C	15	28	19	16	7	19	23	12	17
15%	20%	D	17	8	8	8	10	4	10	6	14
20%	25%	E	13	5	2	8	10	6	5	5	4
25%	100%	F	52	45	21	18	23	23	18	24	15
			498	511	519	519	525	521	515	508	527
			<i>Industry development & associated grade</i>								
			0.8%	-2.4%	-5.3%	-6.8%	-5.9%	-5.1%	-5.9%	-5.3%	-3.4%
			A	A	B-	B-	B-	B-	B-	B-	A

Source: SNL, 2011, Individual Company Statutory Statements

Accident year hindsight (redundancy)/deficiency

Emerged (redundancy)/deficiency as a % of initial booked reserves

Accident Year	All	Other Liab	Med Mal	CMP	WC	PP AL
1998	11% C	26% F	19% D	15% C	23% E	-4% A
1999	18% D	47% F	24% E	17% D	32% F	0% A
2000	21% E	44% F	28% F	23% E	34% F	2% A
2001	9% B	27% F	16% D	4% A	21% E	-1% A
2002	2% A	24% E	6% B	-5% A	13% C	-3% A
2003	-12% C-	-8% B-	-18% D-	-13% C-	-8% B-	-9% B-
2004	-19% D-	-27% F-	-30% F-	-16% D-	-23% E-	-11% C-
2005	-16% D-	-24% E-	-29% F-	-13% C-	-24% E-	-9% B-
2006	-14% C-	-19% D-	-30% F-	-16% D-	-15% C-	-6% B-
2007	-8% B-	-10% B-	-24% E-	-12% C-	-6% B-	-4% A
2008	-6% B-	-6% B-	-14% C-	-8% B-	2% A	-5% A
2009	-4% A	-2% A	-9% B-	-4% A	0% A	-4% A
2010	-1% A	0% A	-5% A	0% A	5% A	-2% A

Source: SNL, 2011, Individual Company Statutory Statements

Grading the industry development

- Distribution of companies to grade ranges varies by line of business
- Note that more recent calendar year reserve development appears to get better grades – why?
 - Are reserves now more adequate than they were 10 years ago?
 - Is it too early to know?
- Underlying accident year reserve development reveals poor grades

Thank you