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Mr. Boison, a consultant in MHL's New York office, has more than 30 years experience in pricing for property/casualty insurance. A graduate of Fordham University, he was previously a senior vice president at Insurance Services Office, Inc., in charge of International Services, and ISO ratemaking activities before that.



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Effects of the Winter of 2001-02 on Pure Premiums

By **LeRoy A. Boison, Jr.**
and **Klayton N. Southwood**

The adverse effect of winter driving on automobile claim frequency and, hence, pure premiums, is well recognized by those familiar with personal automobile insurance. Pure premiums for the first quarter of each year for Collision and Property Damage are typically 15 and 10 percent higher, respectively, than other quarters of the year for those states that experience the effects of winter.

Conversely, the few states that are insulated from the effects of winter show minimal variation.

For 2001-02, a combination of significantly warmer than normal temperatures, combined with below average levels of precipitation, resulted in an extremely mild winter.

The National Climatic Data Center (NCDC), referring to the December 2001–February 2002 time period, cites¹:

- Fifth warmest winter on record;
- Ten states from the upper Midwest to the Northeast experienced a record warm winter;

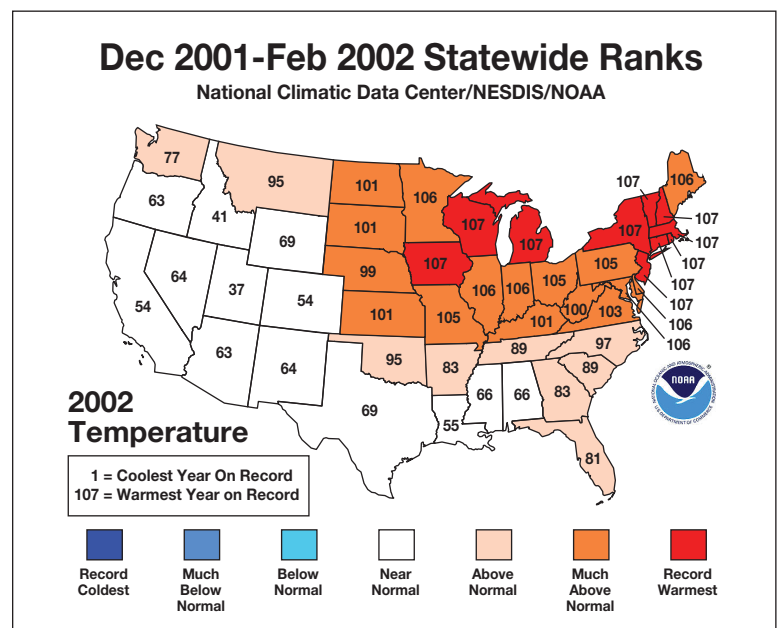


Exhibit 1

- Much of the U.S. drier than normal during the winter season;
- Second warmest November-February on record; and
- Second driest February on record for the continental United States.

The effects by state are displayed graphically on Exhibits 1 and 2.

Exhibit 1 shows the average temperature ranking by state for the December to February time period over the past 107 years. For the Midwest and Northeast, 10 states experienced their warmest winter, with 5 states having their second warmest and 4 states recording their third warmest.

¹ Climate of 2002 – February and Boreal Winter National Analysis, National Climatic Data Center

Dec 2001-Feb 2002 Statewide Ranks

National Climatic Data Center/NESDIS/NOAA

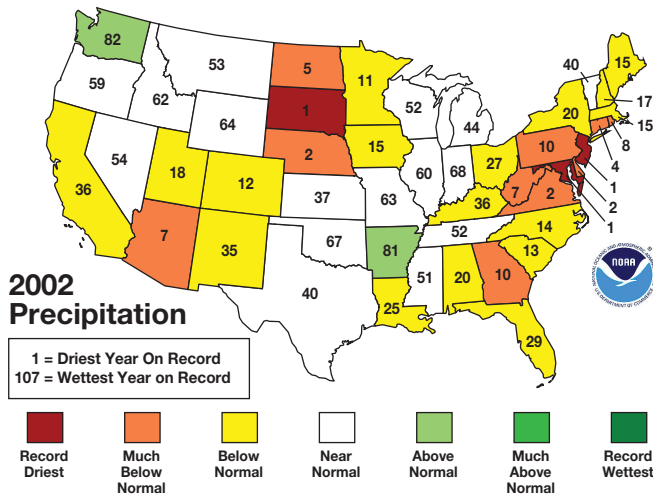


Exhibit 2

Exhibit 2 displays comparable data for precipitation levels. Of those states that experienced significantly above-normal temperatures, the majority also received below-normal precipitation. The composite effect of these two anomalies resulted in an extremely favorable impact on insurance claims in certain states. We have compared the data from the First Quarter, 2002 Industry

Fast Track Experience to historic first quarters over the past 27 years, in order to calculate the impact of this anomaly by state.

The degree to which the data is impacted is significant. Thus, care must be taken in the use of this data on an unadjusted basis in ratemaking applications. Unless it is believed that this type of winter can be reasonably expected to occur again, it would be inappropriate to use the ratemaking and trend experience that reflects the first quarter of 2002 without factoring out any bias which exists in this data.

Historic Results

Exhibit 3 sets forth the historic relationship of first quarter pure premiums relative to the comparable year-ending pure premium for the past 27 years². Data is displayed for Collision and Property Damage coverages, as these coverages are the quickest-settling and, thus, would be the most indicative of the true effect of the weather on first quarter pure premiums. The actual calculated ratio and each state's respective rank within each coverage is displayed.

Ratio of First Quarter Pure Premium to Quarterly Year-Ending Pure Premium - Average from 1975 to 2002

State	Collision		Property Damage		State	Collision		Property Damage	
	Ratio	Rank	Ratio	Rank		Ratio	Rank	Ratio	Rank
Maine	1.436	1	1.239	4	Delaware	1.146	27	1.078	32
Vermont	1.432	2	1.246	2	West Virginia	1.141	28	1.060	36
New Hampshire	1.374	3	1.188	7	Utah	1.138	29	1.131	14
Minnesota	1.323	4	1.225	5	Maryland	1.134	30	1.063	35
Alaska	1.304	5	1.361	1	Kansas	1.116	31	1.079	31
Connecticut	1.281	6	1.133	12	Virginia	1.115	32	1.050	37
Rhode Island	1.255	7	1.131	13	Missouri	1.114	33	1.069	34
Wisconsin	1.252	8	1.188	8	Kentucky	1.110	34	1.041	41
North Dakota	1.243	9	1.243	3	New Mexico	1.106	35	1.082	30
Pennsylvania	1.234	10	1.120	18	California	1.105	36	1.071	33
Iowa	1.218	11	1.164	11	Nevada	1.101	37	1.082	29
New York	1.217	12	1.109	23	District of Columbia	1.092	38	1.045	39
Massachusetts	1.217	13	1.114	21	North Carolina	1.083	39	1.038	42
South Dakota	1.203	14	1.173	9	Oklahoma	1.081	40	1.034	45
Montana	1.201	15	1.198	6	Arizona	1.073	41	1.083	28
Michigan	1.200	16	1.119	19	Georgia	1.059	42	1.044	40
Ohio	1.194	17	1.110	22	South Carolina	1.057	43	1.028	48
New Jersey	1.185	18	1.089	26	Tennessee	1.056	44	1.020	49
Washington	1.184	19	1.107	24	Texas	1.049	45	1.029	47
Indiana	1.171	20	1.094	25	Florida	1.033	46	1.049	38
Nebraska	1.170	21	1.128	16	Alabama	1.029	47	1.029	46
Idaho	1.169	22	1.130	15	Louisiana	1.029	48	1.035	44
Illinois	1.163	23	1.116	20	Hawaii	1.023	49	1.037	43
Colorado	1.161	24	1.124	17	Arkansas	1.022	50	0.994	52
Wyoming	1.153	25	1.169	10	Mississippi	1.006	51	1.006	50
Oregon	1.151	26	1.087	27	Puerto Rico	0.990	52	1.006	51

Ratio of First Quarter to 27 Year Average

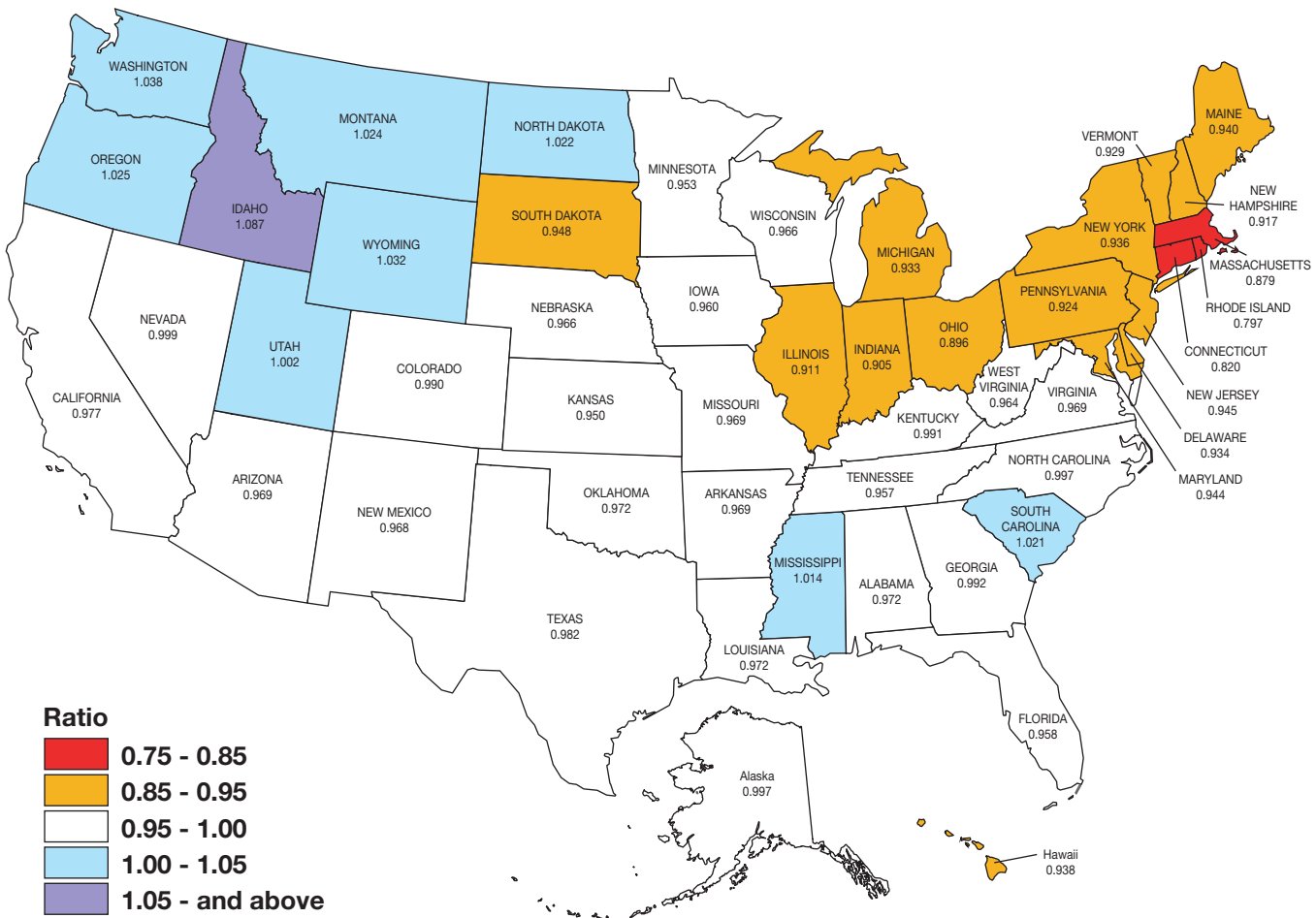


Exhibit 4

As expected, the highest ratios are consistent for these two coverages and are highly correlated to the most winter weather-prone states. In fact, it is significant to note that the New England states comprise five of the seven top spots for Collision. As is to be expected, the Southern states are the least impacted.

2001-02 Results

In comparing the first quarter 2002 pure premiums to the historic first quarter averages, it is clear that the mild winter produced very favorable results for insurers. For Collision coverage, which is the most indicative of the immediate effects, the Midwestern, New England and Middle Atlantic states had pure premiums significantly below their average. This can be seen graphically above in Exhibit 4.

The Northern states with the greatest beneficial impact for Collision coverage were Rhode Island, -20%; Connecticut, -18%; and Massachusetts, -12%.

2001-02 Results Compared With Previous Winters

It can be seen quite clearly that the results for the winter of 2001-02 were much better than those that occurred in other winters, as the ratio for the first quarter of 2002 is consistently lower than other historic first quarter ratios. A comparable result is obtained when doing the same analysis for Property Damage, although it is less dramatic, as the seasonality of PD is not as immediately observed in quarterly data.

The series of exhibits on the following page shows the ratio of the quarterly to year-ending quarterly pure premiums for Rhode Island, Connecticut and Massachusetts. Ratios were plotted on a quarterly basis from the first quarter of 1976 to the first quarter of 2002. In order to more clearly illustrate the impact of the mild winter of 2001-02 on pure premiums, the ratios for the first quarter of each year were also isolated on separate charts.

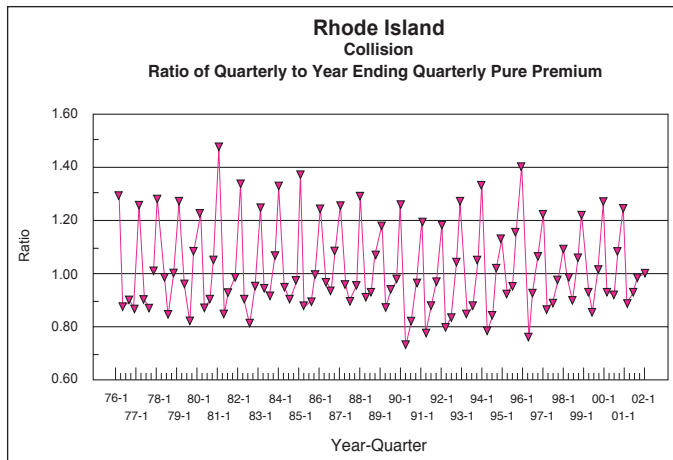


Exhibit 5

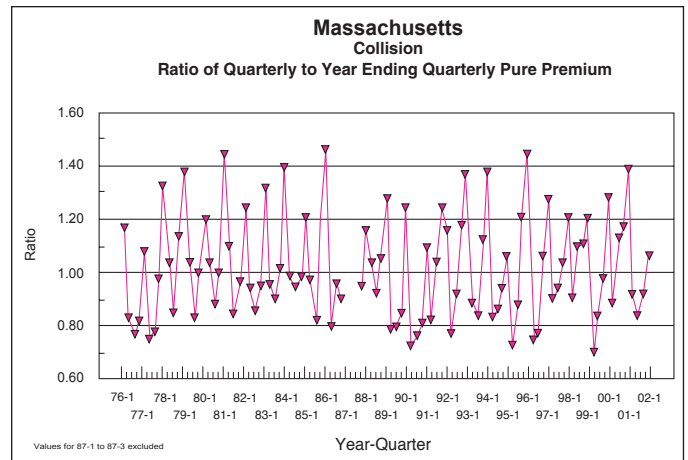


Exhibit 9

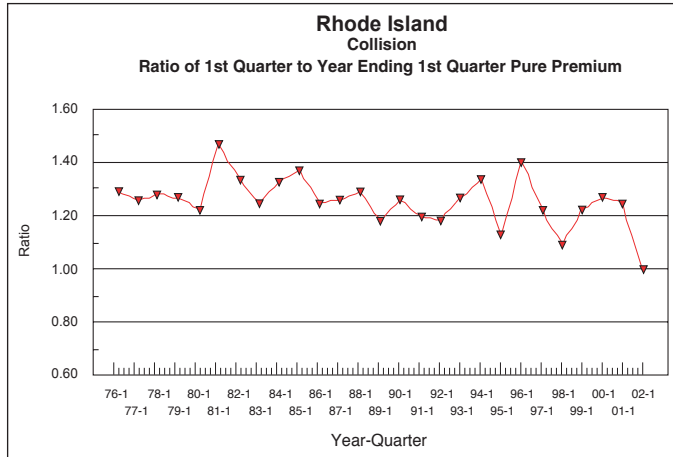


Exhibit 6

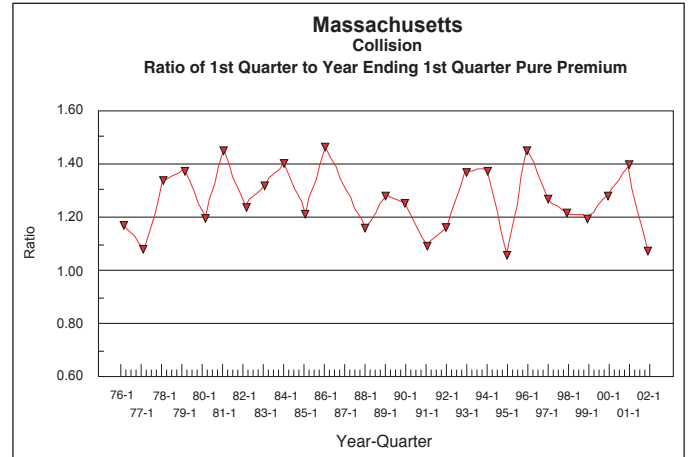


Exhibit 10

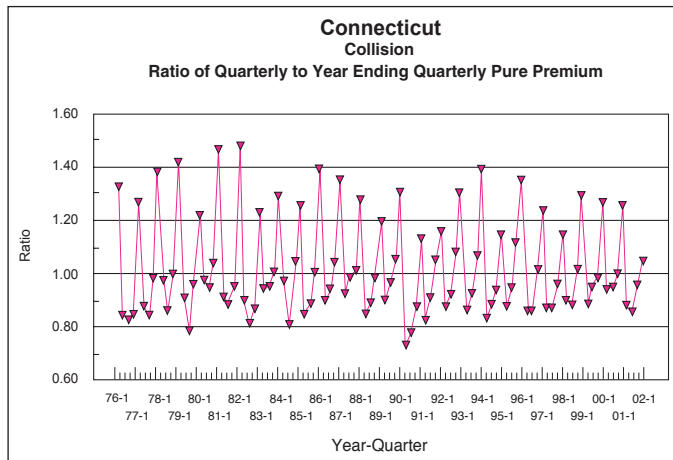


Exhibit 7

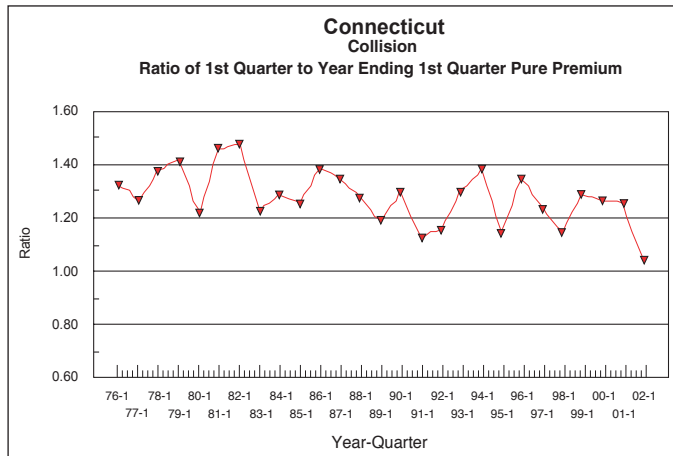


Exhibit 8

Conclusion

The winter of 2001-02 was record-setting with regard to higher than normal temperatures combined with lower than normal precipitation. This resulted in extremely favorable first quarter personal auto insurance results in those states that are most influenced by winter weather.

Care must be given in the use of experience for this period in ratemaking, as trend projections and base experience years that include this period should be adjusted, unless there is reason to believe that this "abnormal" winter will occur again in the future. Otherwise, rate needs will tend to be understated.

About this study

A complete copy of the data and exhibits underlying this study can be obtained from MHL for \$300. This would include a 27-year data base of experience for all states, with graphs and formulas to replicate the analysis.

To order, please contact either LeRoy Boison (leroyb@mhconsult.com or 516-746-7149), or Klayton Southwood (klaytons@mhconsult.com or 309-662-0102).