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Perspectives on the Insurance Crisis

Sources of the Crisis in Liability Insurance: An Economic Analysis

Richard N. Clarke†
Frederick Warren-Boulton††
David D. Smith+++ 
Marilyn J. Simon++++

The existence, nature, and causes of a "crisis" in the market for property-casualty insurance in the United States remain the subject of extensive debate. Two alarming features of current markets, unaffordability and unavailability, are cited as evidence that something is amiss.¹ Premiums charged for several lines of property-casualty insurance coverage have soared over the past several years. Stories detailing two to three hundred percent rate increases for daycare centers, five thousand percent increases for asbestos removal firms, and fifty to one hundred percent increases for medical malpractice coverage for obstetricians have become commonplace.²

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2. See, e.g., id. at 6-16; U.S. Dep't of Justice, Tort Policy Working Group, An Update
Yet, if higher premiums were the only remarkable characteristic of the current crisis, it would be difficult to differentiate these developments from many other instances of rapid price inflation that have occurred in insurance and other businesses over the last decade. The most worrisome feature of present difficulties in property-casualty insurance is the current unavailability of certain liability insurance products, regardless of the premium offered for their purchase. Liability coverages that are currently almost unavailable from property-casualty insurers include policies that protect against environmental pollution and certain lines of coverage that insure governmental units against citizen suits for failure to provide protective services such as police protection, roadway maintenance, or traffic signals.

Four principal reasons have been offered to explain these developments. The first explanation posits that insurers have entered illegal, collusive agreements to foment a crisis. The second suggests that imprudent business practices among property-casualty insurers are to blame. The third explanation emphasizes defects in state regulatory structures governing insurance practices. The fourth points to changes in the civil justice system's methods of determining the legal liability of defendants and computing damages allowable to plaintiffs.

This Article examines the economics of the property-casualty insurance industry to determine whether a crisis exists in this market and to evaluate the likelihood of the most commonly alleged causes. Part I examines


4. Id.
5. Id.
8. E.g., TORT POLICY UPDATE, supra note 2, at 73-74; see also Blair & Makar, supra note 2, at 439-42.
10. For a more complete documentation of the range of arguments supporting or denying the existence of an insurance crisis, see TORT POLICY REPORT, supra note 1, at 16-52; The Explosion in
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certain statistics from the industry to establish the existence and limits of the current crisis. A study of aggregate and disaggregate time series statistics shows that a crisis may exist in only some of the many lines of property-casualty insurance. Part II evaluates the theoretical and empirical plausibilities of each of the competing, and possibly complementary, explanations for difficulties in the market for liability insurance. It concludes that illegal or imprudent business practices or defective state regulation are unlikely to be significant causes of the identified crisis. Rather, much of the dislocation in property-casualty insurance markets seems to result from unanticipated and untoward changes in the way in which courts establish tort liability and assess damages.

I. Existence and Limits of a Crisis

Before examining the validity of the competing explanations for a liability insurance crisis, it is necessary to verify that a crisis actually exists. This Part evaluates time series statistics from the property-casualty insurance industry to determine whether the financial performance of the industry, and of certain lines of coverage within the industry, has changed markedly in recent years. A lack of significant changes may show that the crisis is more contrived than real.

The first data examined are those detailing the income sources for property-casualty insurers. Total property-casualty income as a percentage of earned premiums is composed of underwriting gain/loss as a percentage of earned premiums,\(^\text{11}\) and net income from investments as a percentage of earned premiums.\(^\text{12}\) Examining the sum of these two components, combined net income as a percentage of earned premiums, allows comparison of the insurer's net income with its premium revenues.\(^\text{13}\) It is reasonable to hypothesize that a crisis would be manifested both by a deterioration in the levels of these income component ratios and by an increase in the instability of these ratios. A reduction in the underwriting gain/loss ratio indicates that insurers are paying out increasing fractions of their premium income to cover losses; otherwise, the apparent


\(^{12}\) Advance premiums paid to an insurer become earned by the insurer in proportion to the passage of the time period of coverage. The underwriting gain/loss ratio consists of earned premiums minus losses and expenses, divided by earned premiums. The measurement indicates how an insurer's current costs and expenses compare with its premium revenues. Insurance Information Inst., Basic Concepts of Accounting and Taxation of Property/Casualty Insurance Companies 9, 17 (1984).

\(^{13}\) The net investment income ratio is income earned by insurers from investing their reserves, divided by earned premiums. It measures the amount of investment income earned by the insurer relative to its premium income. Id. at 9.
dissatisfaction of insurers with the current situation would not be evident. Likewise, if net investment income were rising, there would not be the same need for substantial premium increases as if net investment income were falling. Thus, income from either, or both, sources must be declining if insurers' claims of a crisis are to be considered plausible. 14

Just as deteriorating ratios may indicate a crisis, so too may income ratios that are becoming more variable. Indeed, the theoretic models of insurance presented by Ralph A. Winter15 and Karl Borch16 suggest that for insurers to maintain a fixed probability of remaining financially solvent, premiums must be set higher in markets where losses and investment income are unstable and unpredictable. If the demands of financial solvency cause premiums to be set so high that such coverage becomes unattractive to customers, no coverage will be purchased. It may then seem as if these lines of coverage are no longer available.

Time series data show that although underwriting losses escalated greatly in the 1981-85 period compared with the 1967-80 period, much of this deterioration in the underwriting gain/loss ratio was counteracted by a concurrent rise in the net investment income ratio (see Table 1). The changes in the levels of both the underwriting and investment ratios are statistically significant at the .01 level.17 The combined effect of these two changes has been a deterioration, from 6.18% to 1.33%, in the combined net income ratio. This deterioration is significant at the .05 level.18

14. Note that a deterioration of the levels of these ratios does not prove conclusively that no collusion exists among insurers. It may be evidence that collusion, while raising premiums, has been unable to prevent competitive entry from reducing these ratios to more "normal" levels. See infra notes 41-76 and accompanying text.


17. The statistic used to measure the significance of the difference between the 1967-80 figures and the 1981-85 figures is called an F-statistic. Significance of this statistic at the .01 level implies that there is no more than one chance in one hundred that one would observe this level of the F-statistic if the hypothesis of "no difference" were true. E. Mansfield, Statistics for Business and Economics 284, 377-82 (2d ed. 1983).

18. Significance of this statistic at the .05 level implies that there is no more than a five percent chance that one would observe this level of the F-statistic if the hypothesis of "no difference" were true. Id. at 284.
Sources of the Insurance Crisis

Table 1

Time Series Variation in Property-Casualty Industry Operating Results

<table>
<thead>
<tr>
<th>Years</th>
<th>Underwriting Gain/Loss (Percent to Earned Premiums)</th>
<th>Net Investment Income (Percent to Earned Premiums)</th>
<th>Combined Net Income (Percent to Earned Premiums)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>yearly avg.     std. dev.</td>
<td>yearly avg.     std. dev.</td>
<td>yearly avg.     std. dev.</td>
</tr>
<tr>
<td>1967-1980</td>
<td>-1.70            3.35</td>
<td>7.88              1.78</td>
<td>6.18              3.59</td>
</tr>
<tr>
<td>Change</td>
<td>-11.58           2.06</td>
<td>6.74              -1.13</td>
<td>-4.85             1.34</td>
</tr>
<tr>
<td>F statistic for equality of means or equality of variance</td>
<td>31.98***         2.61*</td>
<td>66.10***         7.50***</td>
<td>5.55**            1.89</td>
</tr>
</tbody>
</table>

***Significant at .01 level  **Significant at .05 level  *Significant at .10 level

However, the variability of these ratios is more revealing since it is their variability which makes them difficult to predict accurately. While the variation of the underwriting gain/loss ratio was significantly higher during the 1981-85 period than during the 1967-80 period, the standard deviation (variability) of the net investment income ratio actually declined.20 It is possible to compare the variability of these two types of ratios directly by examining their coefficients of variation.21 The coefficient of variation for underwriting gain/loss during 1981–85 was .41, or ten times higher than the coefficient of variation for net investment income, which measured only .04 over the same period. This suggests that to the extent a crisis truly exists, it results more from the unpredictability and elevated level of the spread between premium revenues and loss payouts and expenses than from any instability of investment income.22

Since the more likely culprit for the crisis is underwriting gain/loss, it is necessary to break down the individual components of the losses and

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20. F-statistics also may be used to test the statistical significance of the difference in the variances of two random variables. The F-statistic for a decline in this ratio's variance is 7.50, which is significant at the .05 level. Id. at 403.
21. The coefficient of variation is the ratio of a random variable's standard deviation to its mean. By examining this ratio, it is possible to compare directly the relative amounts of variability in two random variables that have different mean values. Id. at 46, 54.
22. Since net investment income has been growing at such a stable rate over the 1980s, it is difficult to blame imprudent investments for causing today's premium hikes and coverage withdrawals. See infra notes 77-83 and accompanying text.
expenses portion of underwriting gain/loss to analyze more precisely the sources of its deterioration and instability. The losses and expenses portion of this ratio is separated into two principal categories: losses paid to policyholders plus expenses of adjusting payouts and all other expenses associated with selling and administering policies (see Table 2). While the ratio describing the category of policyholder losses and adjustment expenses displayed a highly significant increase of 12.56 percentage points, from 70.44% of earned premiums up to 83.00%, the ratio describing administrative and other expenses experienced only an insignificant drop. Overall, these changes caused the combined loss/expense to earned premiums ratio to rise significantly. With respect to the variability of these components, only the variation of policyholder losses and expenses increased, while the other component variances declined. The net effect was to raise somewhat the variance of the combined loss/expense ratio.

Table 2

<table>
<thead>
<tr>
<th>Years</th>
<th>Loss and Adjustment Ratio to Premiums Earned</th>
<th>Administrative Expenses Ratio to Premiums Written</th>
<th>Premium Dividend Ratio to Premiums Earned</th>
<th>Combined Ratio to Premiums Earned</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>yearly avg.</td>
<td>std. dev.</td>
<td>yearly avg.</td>
<td>std. dev.</td>
</tr>
<tr>
<td>1961-1980</td>
<td>70.44</td>
<td>3.78</td>
<td>28.54</td>
<td>2.26</td>
</tr>
<tr>
<td>1981-1985</td>
<td>83.00</td>
<td>5.25</td>
<td>27.50</td>
<td>.96</td>
</tr>
<tr>
<td>Change</td>
<td>12.56</td>
<td>1.47</td>
<td>-1.04</td>
<td>-1.30</td>
</tr>
</tbody>
</table>

F statistic for equality of means or equality of variance

<table>
<thead>
<tr>
<th>Yearly avg.</th>
<th>std. dev.</th>
<th>Yearly avg.</th>
<th>std. dev.</th>
<th>Yearly avg.</th>
<th>std. dev.</th>
<th>Yearly avg.</th>
<th>std. dev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>39.10***</td>
<td>1.93</td>
<td>1.03</td>
<td>5.54*</td>
<td>.61</td>
<td>2.60</td>
<td>47.79***</td>
<td>2.64*</td>
</tr>
</tbody>
</table>

***Significant at .01 level
**Significant at .05 level
*Significant at .10 level

These data suggest two conclusions. First, arguments for the existence of an industry-wide crisis must depend more on a decrease in the operating margins of insurers than on increases in the variability of these margins. Second, the components of a property-casualty insurer's financial statement most responsible for changes in its position are loss payouts and adjustment expenses. It is important to note that these statistics rep-

23. An additional expense category consists of dividends paid to policyholders. Since this "expense" is discretionary and constitutes a small fraction of total expenses (typically less than two percent), we do not consider it significant.

24. Dividends to policyholders increased insignificantly.

25. BEST'S AGGREGATES AND AVERAGES 1986, supra note 19, at 75.

26. These data are insufficient to reject a hypothesis that deterioration or instability in the denom-
resent totals of all lines in the property-casualty insurance industry. It may well be that these aggregate statistics disguise crisis developments in a few particular lines among the many lines of coverage offered by the industry.

To account for this possibility, these statistics are disaggregated by line of coverage within the property-casualty industry. Table 3 presents statistics describing the performance of four out of the roughly two dozen lines that comprise the property-casualty industry, along with corresponding data for the total property-casualty industry. The lines examined are: Homeowners’ Multiple Peril, Private Passenger Automobile Liability, Other Liability, and Medical Malpractice. Two of these lines, Other Liability and Medical Malpractice, were selected because they are thought to be in a severe state of crisis. The other two, Homeowners’ and Auto Liability, have been relatively unaffected by the current crisis and act as controls against which to compare developments in the crisis lines.

Note that each line experienced significant increases in the ratios describing losses incurred, loss adjustment expenses, other underwriting expenses, and net investment income between the periods 1976–80 and 1981–85. Commissions and brokerage expenses declined significantly between the same two periods; dividends to policyholders showed no change. The net effect of these changes was a significant deterioration (that is, an increase) of the overall operating ratio for each of the displayed lines. Other Liability and Medical Malpractice suffered the most dramatic reductions in operating margins over this time span, but reductions in margins were a characteristic shared by almost all property-casualty lines.

The key factor distinguishing those lines believed to be in crisis is the instability of their ratios. As suggested earlier, increasing variance of
### Table 3

**Time Series Variation in Underwriting Experience By Line**

<table>
<thead>
<tr>
<th>Line</th>
<th>Losses Incurred&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Loss Adjustment Exp&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Commission &amp; Brok. Exp&lt;sup&gt;b&lt;/sup&gt;</th>
<th>Other Underwriting&lt;sup&gt;b&lt;/sup&gt;</th>
<th>Dividends to Policy&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Net Investment Gain/Loss &amp; Other Income&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Overall Operating Ratio&lt;sup&gt;a&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>avg.</td>
<td>std. dev.</td>
<td>avg.</td>
<td>std. dev.</td>
<td>avg.</td>
<td>std. dev.</td>
<td>avg.</td>
</tr>
<tr>
<td>Total All Lines</td>
<td>76–80</td>
<td>63.60</td>
<td>2.20</td>
<td>9.24</td>
<td>0.21</td>
<td>12.94</td>
<td>0.21</td>
</tr>
<tr>
<td>Change</td>
<td>77.20</td>
<td>4.64</td>
<td>10.80</td>
<td>0.65</td>
<td>12.52</td>
<td>0.29</td>
<td>14.98</td>
</tr>
<tr>
<td>F</td>
<td>14.00***</td>
<td>4.46*</td>
<td>26.00***</td>
<td>9.88**</td>
<td>6.78**</td>
<td>2.02</td>
<td>25.66***</td>
</tr>
<tr>
<td>Homeowners'</td>
<td>76–80</td>
<td>58.48</td>
<td>5.37</td>
<td>7.00</td>
<td>0.37</td>
<td>18.56</td>
<td>0.36</td>
</tr>
<tr>
<td>Change</td>
<td>75.66</td>
<td>3.09</td>
<td>8.18</td>
<td>0.66</td>
<td>17.42</td>
<td>0.15</td>
<td>13.86</td>
</tr>
<tr>
<td>F</td>
<td>6.72**</td>
<td>3.02</td>
<td>12.17***</td>
<td>3.09</td>
<td>41.92***</td>
<td>5.76*</td>
<td>35.46***</td>
</tr>
<tr>
<td>Auto Liability</td>
<td>76–80</td>
<td>65.00</td>
<td>2.23</td>
<td>11.38</td>
<td>0.34</td>
<td>10.42</td>
<td>0.26</td>
</tr>
<tr>
<td>Change</td>
<td>76.12</td>
<td>4.05</td>
<td>12.08</td>
<td>0.43</td>
<td>9.92</td>
<td>0.18</td>
<td>14.24</td>
</tr>
<tr>
<td>F</td>
<td>24.42***</td>
<td>3.30</td>
<td>8.06**</td>
<td>1.60</td>
<td>12.62***</td>
<td>2.09</td>
<td>27.74***</td>
</tr>
<tr>
<td>Other Liability</td>
<td>76–80</td>
<td>55.14</td>
<td>3.26</td>
<td>19.28</td>
<td>1.03</td>
<td>14.14</td>
<td>0.29</td>
</tr>
<tr>
<td>Change</td>
<td>76.88</td>
<td>12.52</td>
<td>28.98</td>
<td>3.87</td>
<td>12.38</td>
<td>0.92</td>
<td>17.30</td>
</tr>
<tr>
<td>F</td>
<td>21.74</td>
<td>9.26</td>
<td>9.70</td>
<td>2.34</td>
<td>1.76</td>
<td>0.63</td>
<td>4.44</td>
</tr>
<tr>
<td>Medical</td>
<td>76–80</td>
<td>68.70</td>
<td>10.42</td>
<td>26.56</td>
<td>2.74</td>
<td>6.22</td>
<td>1.06</td>
</tr>
<tr>
<td>Change</td>
<td>81–85</td>
<td>104.20</td>
<td>9.36</td>
<td>33.02</td>
<td>3.70</td>
<td>9.68</td>
<td>3.30</td>
</tr>
<tr>
<td>F</td>
<td>32.14***</td>
<td>1.24</td>
<td>9.82***</td>
<td>1.82</td>
<td>6.54***</td>
<td>10.32***</td>
<td>11.78***</td>
</tr>
</tbody>
</table>

---

<sup>a</sup> Percent of premiums earned

<sup>b</sup> Percent of premiums written

---

losses and other expenses may make it much harder for insurers to predict policyholders’ future losses accurately and underwrite their risks profitably. Lacking confidence in the profitability of such coverage, insurers may choose either to raise their prices to extremely safe levels or to withdraw coverage altogether. However, observe that of all the displayed lines, only Other Liability exhibits a substantial increase in overall instability. The fact that the other crisis line, Medical Malpractice, does not exhibit such increases in the instability of its ratios may be taken as evidence that a crisis in that line has persisted since the mid-1970s. Thus, it is not anomalous that its instability has not increased greatly over the 1980s—it was already unstable (see Table 4). In both 1976–80 and 1981–85, the coefficient of variation exhibited by Medical Malpractice’s overall operating ratio was .09. By contrast, the coefficient for Other Liability more than doubled, rising from .05 in the earlier period to .11 in the later period. The coefficients of variation in the 1981–85 period were almost universally two to three times higher for each ratio in the crisis lines than for the corresponding ratio in the noncrisis lines (see Table 4). Thus, this measure of variability provides evidence for the hypothesis that a crisis within property-casualty insurance is largely limited to a few liability lines and that it is evidenced by relatively high or increasing instability in loss payouts and adjustment expenses.

II. Competing Explanations

Property-casualty insurance is complex. Since an insurance contract is not defined or transacted completely in its sale from underwriter to buyer, its cost cannot be controlled solely by the underwriter. A buyer purchases a policy which requires a payout contingent on the action of some third party—for example, the filing of a lawsuit by the injured patient of an insured doctor, or by a pedestrian injured by an insured driver. Furthermore, the determination that an injury has occurred and the valuation of the loss suffered by the injured party can be beyond the control of the insured or his insurance company. The civil courts have final authority to find an insured and his insurance company liable and to determine the amount of damages that they must reimburse. In addition, state

34. Id. at 19-21.
Table 438

Coefficients of Variation in Underwriting Experience By Line

<table>
<thead>
<tr>
<th></th>
<th>Losses Incurred</th>
<th>Loss Adj. Exp.</th>
<th>Comm. &amp; Brok.</th>
<th>Other Underwriting</th>
<th>Dividends</th>
<th>Net Investments</th>
<th>Overall Operating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total All Lines</td>
<td>.03 .06</td>
<td>.02 .06</td>
<td>.02 .02</td>
<td>.04 .05</td>
<td>.18 .10</td>
<td>.15 .09</td>
<td>.03 .04</td>
</tr>
<tr>
<td>Homeowners'</td>
<td>.09 .05</td>
<td>.05 .08</td>
<td>.02 .01</td>
<td>.01 .02</td>
<td>.20 .17</td>
<td>.09 .11</td>
<td>.06 .03</td>
</tr>
<tr>
<td>Auto Liability</td>
<td>.03 .05</td>
<td>.03 .04</td>
<td>.02 .02</td>
<td>.02 .02</td>
<td>.42 .18</td>
<td>.10 .08</td>
<td>.02 .03</td>
</tr>
<tr>
<td>Other Liability</td>
<td>.06 .16</td>
<td>.05 .13</td>
<td>.02 .07</td>
<td>.12 .15</td>
<td>.17 .17</td>
<td>.18 .13</td>
<td>.05 .11</td>
</tr>
<tr>
<td>Medical Malpractice</td>
<td>.15 .09</td>
<td>.10 .11</td>
<td>.17 .05</td>
<td>.13 .13</td>
<td>.74 .29</td>
<td>.39 .08</td>
<td>.09 .09</td>
</tr>
</tbody>
</table>

35. Computed from Table 3; *supra*. The coefficient of variation equals the standard deviation divided by the average.
regulation of insurance often limits the flexibility of insurers to offer the coverage packages they wish, at the prices they wish, and to the clients they wish.\(^\text{36}\)

In light of these complexities, the multiplicity of explanations for the cost and scarcity of liability insurance is hardly surprising. One explanation, widespread among consumer advocates, is that insurers have colluded illegally to raise rates and curtail policy availability.\(^\text{37}\) A second explanation faults insurers for bad business decisions: prior to the crisis, insurers sold policies at “too low” rates and invested their inadequate loss reserves in unsound securities. These imprudent actions resulted in a current need to raise rates to supply sufficient levels of policyholder surplus.\(^\text{38}\) A third explanation blames defective state regulation for permitting or even requiring insurers to charge excessive rates.\(^\text{39}\) Finally, the insurance industry points to changes in tort law that have liberalized the circumstances under which policyholders are found liable and expanded the damages for which they are responsible.\(^\text{40}\) The remainder of this Part evaluates the likelihood of each of these explanations.

A. Collusion

If insurers collude, agreeing not to compete with one another, then a large premium hike, refusal of service, or quality of coverage reduction by one firm will not be countered by service offerings or lower-priced, higher quality policies from other firms.\(^\text{41}\) Although such agreements to raise price and restrict output are illegal per se under the Sherman Antitrust Act\(^\text{42}\) and expose the participants to severe criminal and civil sanctions,\(^\text{43}\)

\(^{36}\) Id. at 853-56.

\(^{37}\) See Goldberg, supra note 6, at 55; Strasser, supra note 6, at 1; Letter from Jay Angoff, supra note 6; see also Angoff, supra note 6, at 402-08; 414-15.

\(^{38}\) See Olender, supra note 7, at 15; The Manufactured Crisis, supra note 7, at 544; R.A. Winter, supra note 7.


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the McCarran-Ferguson Act of 1945 provides a limited antitrust exemption for the business of insurance. The Act was a response to United States v. South-Eastern Underwriters Association, which held that the business of insurance was within the regulatory power of Congress under the Commerce Clause and therefore was subject to the antitrust laws. The Act secured the primacy of the states in the regulation and taxation of the business of insurance by delimiting the influence of the federal government and relegating only a residual role to the federal antitrust laws. Under the Act, federal antitrust law applies to the business of insurance only to the extent that insurance is not regulated by state law, or if the challenged conduct involves "boycott, coercion, or intimidation."

However, because the McCarran-Ferguson exemption is premised on state regulation, its net immunizing effect is more limited than otherwise might be supposed. There is substantial overlap between the McCarran-Ferguson exemption and another antitrust exemption, the "state action doctrine," which holds that federal antitrust laws do not prohibit anticompetitive conduct properly attributable to the states rather than to private parties. Recent state action cases have established a two-pronged test for determining whether private anticompetitive conduct is entitled to state action immunity. The restraint must be the product of a "clearly articulated and affirmatively expressed" state policy to displace competition, and the state must actively supervise any private anticompetitive conduct. In 1985. For crimes committed after Nov. 1, 1987, see 18 U.S.C. § 3571 (1982 & Supp. III 1985); U.S. SENTENCING COMM'N., SENTENCING GUIDELINES AND POLICY STATEMENT § 2R1.1 (Apr. 13, 1987).

45. 322 U.S. 533 (1944).
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Southern Motor Carriers Rate Conference, Inc. v. United States,50 the Supreme Court held that a state need not “compel” private anticompetitive conduct in order to satisfy this test; rather, state regulation of collective ratemaking by intrastate motor carriers was considered sufficient. Thus, Southern Motor Carriers suggests that at least some forms of state insurance regulation could protect concerted decisions among insurers from antitrust liability, even if the McCarran-Ferguson exemption did not exist.

Although Southern Motor Carriers may have narrowed the difference between McCarran-Ferguson immunity and state action immunity, significant distinctions remain. The McCarran-Ferguson Act applies only to conduct that constitutes the “business of insurance” within the meaning of the Act,51 whereas the state action doctrine is potentially applicable to any conduct regulated by the states. Also, states may regulate some insurer conduct in a manner that is sufficient to trigger the McCarran-Ferguson exemption, but not sufficient to provide state action immunity. For example, it has been held that states do not have to regulate the specific practices challenged under the antitrust laws for the McCarran-Ferguson immunity to apply:

Unless the practice amounts to a boycott, the states are free to regulate it or choose not to regulate. They do not have to expressly authorize a specific activity, or proscribe it, for the exemption to apply. . . . It is enough that a detailed overall scheme of regulation exists.52

Without a detailed, state-by-state analysis of regulation in the crisis lines, it is difficult to assess the extent to which concerted insurer decisions would enjoy state action immunity from the antitrust laws. Moreover, antitrust immunity by itself does not necessarily imply that insurance providers are currently colluding. Even in the absence of legal prohibitions, the structure of the market for property-casualty insurance may render successful collusion difficult or even impossible. As the following analysis

of market structure will demonstrate, it is unlikely that a repeal of the McCarran-Ferguson Act would have any significant effect, positive or negative, on competition in the insurance industry.

For firms to collude effectively, substantially all firms capable of supplying the market must agree to limit output. Such agreement is difficult to achieve if the current supplying firms are numerous and diverse and if firms not currently supplying the market may readily enter. Four aspects of market structure are highly relevant to the probability that collusion will be attempted, or if attempted, that it will be successful. First, fewer firms in the market make collusive agreements easier to obtain. Second, holding constant the number of firms, the greater the disparity of market shares, the more likely it is that a collusive agreement will require the participation of only a few of the largest firms to be successful. Third, the easier it is for colluding firms to detect and police any cheating on the agreement, the greater the probability of obtaining an effective agreement. Finally, unhindered entry of new suppliers into the market may limit or even completely deter collusion. Such entry reduces the price that is attainable under collusion and decreases the market shares of the collusive incumbents.

Although regulated by state authorities, entry into any line of property-casualty insurance appears to be relatively easy in most states. Interviews with insurance executives and regulators conducted by the Antitrust Division of the United States Department of Justice indicate that insurers normally can acquire quickly and easily the necessary licenses and expertise either to begin selling their existing lines of insurance in new states or to provide new lines in the states in which they are already licensed. This

53. See infra notes 54-76 and accompanying text.
56. In the insurance industry, the McCarran-Ferguson Act and state regulation often permit collective (i.e., bureau) rate making. See INSURANCE INFORMATION INST., supra note 11, at 7; H. DENENBERG, R. EILERS, J. MELONE & R. ZELTEN, RISK AND INSURANCE 647 (2d ed. 1974) [hereinafter RISK AND INSURANCE]; C. WILLIAMS & R. HEINS, RISK MANAGEMENT AND INSURANCE 599 (3d ed. 1976). This could permit firms to monitor each other’s adherence to a collusive agreement. On the other hand, since insurance is a heterogeneous, multidimensional product, firms can often increase quality in a subtle fashion, making cheating on a collusive agreement relatively difficult to detect, and collusion less likely. See infra note 90 and accompanying text.
57. Telephone interviews with insurance regulators in the states of California, Florida, Illinois, Michigan, North Carolina, New Jersey, New York, Ohio, Pennsylvania, Texas, and West Virginia; and the legal departments of ten property-casualty insurance firms of varying sizes, randomly selected from the Economics Information Services’ list of property-casualty insurers (Oct. 1986) (conducted by the Antitrust Div., U.S. Dep’t of Justice) [hereinafter Telephone interviews].
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is true even with respect to those lines considered to be in crisis, suggesting that even though at any one time only a few firms may be observed writing a specific line in a particular state, all firms in the property-casualty industry in the United States should be included in the relevant market for any particular type of property-casualty insurance.

In addition to competition from other insurance companies, self-insurance is a potential substitute for over-priced or unavailable protection from the current property-casualty insurers. Although a less attractive alternative for the vast majority of individuals for most perils, self-insurance is a possibility for large corporations and governments. Governments can spread the residual risk across taxpayers. The larger the taxpayer base, the lower the cost of self-insurance to the governmental unit, since as long as all the risks assumed are not perfectly correlated, less residual risk is assumed by each individual taxpayer, and it is easier for the individual taxpayer to pool that risk with other imperfectly correlated risks. For corporations whose equity holders can diversify widely and inexpensively in stock and other capital markets, the attraction of self-insurance is even greater.

Despite the potential ability of large corporations and governments to self-insure in response to even a small collusive price increase, a hypothetical monopoly supplier of any particular line of insurance still could price well above competitive levels because of the unattractiveness of self-

58. For a study of the minimal statutory entry hurdles in Florida, see Blair & Makar, supra note 2, at 438-46.
59. Companies that currently provide only life or health insurance, but that could establish a property-casualty subsidiary in response to a collusive price increase, should also be included in the property-casualty market.
60. For examples of a number of firms that have chosen to self-insure, see Business Struggling to Adapt as Insurance Crisis Spreads, supra note 3, at 31; The Liability Insurance Spiral, N.Y. Times, Mar. 8, 1986, at 35, col. 3. For a discussion of physicians choosing to forego malpractice coverage, see Blair & Makar, supra note 2, at 428-29.
62. Indeed, one might ask why corporations would ever buy insurance. To the extent that the risks assumed by a corporation are ultimately assumed by shareholders who are capable of diversifying their portfolios directly, managers would appear to maximize share values by maximizing the expected value of earnings. Since the purchase of market insurance will always require payment of a premium over the expected cost, self-insurance would appear to predominate. Paying such a premium may be in the interest of shareholders, however, if insurance reduces managerial control problems by allowing more concentrated equity ownership, or if insurance provides an outside check on opportunistic behavior by managers toward shareholders or by shareholders toward bondholders. In addition, especially if bankruptcy is possible, some insurable risks may be borne by nonshareholders, such as workers or managers, who cannot inexpensively diversify away such risks. If the price such input suppliers would charge to assume those risks is greater than the premium over the expected cost that must be paid to an insurance company, the purchase of market insurance can be consistent with maximizing share values. Finally, if costs would be involuntarily borne by third parties, federal or state laws are likely to require firms or individuals to buy insurance. For a fuller description of the elements of a business' decision whether to insure, see De Alessi, Why Corporations Insure, 25 Econ. Inquiry 429 (1987); Mayers & Smith, On the Corporate Demand for Insurance, 55 J. Bus. 281 (1982).
insurance to individuals and smaller corporations or governmental units. Even if enough large corporations and governments would self-insure in response to a small collusive price increase, an exercise of market power by insurers might lead to an increase in the premiums paid by individuals and small corporations and governments relative to those paid by large corporations and governments. Hence self-insurance may not be able to prevent completely the exercise of market power.

Having defined the scope of the relevant market, the next step in estimating the likelihood of collusion among property-casualty insurance suppliers and potential suppliers is to determine market concentration. Market shares should be assigned to competitors according to their abilities to compete and, in particular, to undermine any anticompetitive activities of rivals. The ability of an insurance company to expand output is potentially limited, at least in the short run, by state solvency regulation, which is keyed to certain financial ratios, such as the ratio of policyholders' surplus to premiums.\(^6\) Thus, these financial ratios could be combined with data on net assets to provide a capacity-based measure of market share. However, data on premiums (insurance actually sold) is more readily available. To the extent that sales-to-capacity ratios are uniform across firms,\(^6\) these data provide a good proxy for relative ability to write insurance; thus, they are used to measure market shares. To the extent that insurers can shift capacity across types of insurance, total premiums for all insurance would be a better measure. To be conservative, however, the premiums used were limited to the property-casualty lines.\(^6\)

Roughly eight hundred separate organizations supply property-casualty insurance in the United States. Even if the property-casualty market is considered to consist only of these current suppliers, market concentration is so low that collusion among insurers is extremely unlikely, assuming a national geographic market. Table 5 provides measures of market concentration for property-casualty insurance. The first line shows the Herfindahl-Hirschman Index (HHI) for all property-casualty insurance in the United States from 1980 to 1985.\(^6\) Table 5 also shows the HHIs

63. Telephone interviews, \textit{supra} note 57; \textit{see also} \textit{Insurance Servs. Office, The Coming Capacity Shortage} 5, 19–21 (1985); \textit{Insurance Information Inst., supra} note 11, at 33.

64. This is likely to be true if all states mandate similar maximum sales-to-capacity ratios and if profit incentives encourage insurers to utilize all spare capacity.

65. Note that market shares and concentration would be even smaller if self-insurance and other alternatives to the current suppliers were included.

66. The HHI is an index of market concentration calculated by summing the squares of the market shares of all of the firms in the market. It varies from near 0 (extremely unconcentrated) to 10,000 (total monopoly). The HHI is higher, the smaller the number of firms and the more unequal their market shares. Thus, the HHI provides a single summary measure for the first two of the four aspects of market structure discussed \textit{supra}, text accompanying notes 54–56. \textit{See} F. Scherer, \textit{supra} note 41, at 58–59.
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for Medical Malpractice and Other Liability insurance, lines that are generally considered to be in crisis.

Table 5

National Herfindahl-Hirschman Indices for Select Insurance Lines

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<tbody>
<tr>
<td>All Property-Casualty</td>
<td>213</td>
<td>213</td>
<td>215</td>
<td>225</td>
<td>226</td>
<td>229</td>
</tr>
<tr>
<td>Medical Malpractice</td>
<td>513</td>
<td>523</td>
<td>500</td>
<td>567</td>
<td>663</td>
<td>622</td>
</tr>
<tr>
<td>Other Liability</td>
<td>224</td>
<td>219</td>
<td>220</td>
<td>220</td>
<td>236</td>
<td>278</td>
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The highest HHI for All Property-Casualty was 229 in 1985. Even if Medical Malpractice and Other Liability were valid antitrust markets and competitors were limited to just current sellers of those lines, their highest HHIs would be 663 and 278. The 1984 Department of Justice Merger Guidelines indicate that an industry with an HHI under 1000 is not thought susceptible to collusion. These low levels of market concentration imply that successful collusion among property-casualty insurers is highly unlikely, even in the absence of any legal prohibitions.

Finally, even if collusion were possible in this unconcentrated market because of McCarran-Ferguson or state action immunity, there are additional reasons why the current availability-affordability problems cannot be blamed on collusion. First, these concentration figures have not increased dramatically in recent years, and the antitrust immunities have applied to all lines of insurance since at least 1945. The crisis, however, is of recent origin and is occurring in only a few lines. If McCarran-Ferguson immunity fostered collusion, these effects would have become evident many years ago. Second, collusion cannot explain unavailability:

67. A.M. BEST CO., BEST'S AGGREGATES AND AVERAGES: PROPERTY-CASUALTY (1980-1986) (each yearly volume of this publication was consulted) [hereinafter BEST'S AGGREGATES AND AVERAGES 1980-1986].
68. MERGER GUIDELINES, supra note 55, at S-5.
69. Remember that using market shares within an individual line of property-casualty insurance is likely to overstate true concentration since a more properly defined market would include the shares of potential competitors not currently supplying the particular line of insurance.
70. Uri, Price Fixing Via Rating Bureaus, 21 SOCIO-ECON. PLANNING SCI. 199 (1987) (concluding that inadequate state regulation and existence of rating bureaus may have led to price-fixing and excess profits for title insurance companies).
71. For historical data needed to compute market concentration, see generally BEST'S AGGREGATES AND AVERAGES 1980-1986, supra note 67.
72. De facto immunity has existed even longer, since Paul v. Virginia, 75 U.S. (8 Wall.) 168 (1868) (holding that insurance was not a transaction in interstate commerce), overruled, United States v. South-Eastern Underwriters Ass'n, 322 U.S. 533 (1944).
73. TORT POLICY UPDATE, supra note 2, at 7.

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firms do not collusively raise prices above costs and then refuse to sell the product. Third, if collusion explained the large price increases observed in recent years, there should also have been large increases in price-cost margins and greatly increased profits. By contrast, the empirical evidence reveals a decrease in the overall operating ratio of costs to premiums;\footnote{See supra notes 11-32 and accompanying text. Remember, too, that the overall operating ratio includes investment income as a negative cost. See supra Table 3.} moreover, property-casualty firms have fared poorly in the stock market in recent years.\footnote{See supra note 39, at 506-15.} All things considered, it is highly unlikely that increased collusion could have been a significant contributor to the recent affordability or availability problems in property-casualty insurance.\footnote{There is not general agreement on this point. See supra note 47; see also Angoff, supra note 6, at 402-08, 414-15 (arguing that collusion is responsible for liability crisis).}

B. \textit{Imprudent Business Practices}

Some commentators cite short-sighted or otherwise imprudent business practices as possible causes of the crisis.\footnote{See, e.g., Olender, supra note 7, at 15; \textit{The Manufactured Crisis}, supra note 7, at 544; Comment, supra note 39, at 162.} In particular, they perceive the recent dramatic increases in premiums as a reaction by insurance companies to "inappropriate" (that is, too low) pricing in previous periods and the investment of loss reserves in risky holdings, some of which have lost considerable value or gone bankrupt. They claim that this declining investment income is a major cause of current affordability-availability problems.

It is maintained that during the late 1970s and early 1980s, unusually high interest rates encouraged property-casualty insurers to lower their premium rates substantially. Because high returns on investments could be expected to offset anticipated casualty losses, insurers charged "artificially" low prices to attract business. As long as interest rates remained high, insurance companies could cover casualty losses while maintaining low premiums.\footnote{See sources cited supra note 77.}

The lower initial premiums could be made up by the higher investment income earned on those premiums between the time they were collected and the time they were paid back to policyholders for their covered losses. Insurers were able, and in a competitive market would be forced, to lower their rates. In this scenario, falling interest rates in 1985 and 1986 resulted in an unanticipated decline in investment income. Insurers facing large expected casualty losses found themselves with investment income insufficient to cover these losses and were forced to turn to their only re-
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main source of funds—current policyholders—whose premiums escalated rapidly. In sum, proponents of this theory maintain that insurers have been forced to seek additional income through recent, very substantial premium increases that are needed to compensate them for unexpected declines in investment income.

Theoretical analysis suggests that if property-casualty insurance markets are competitive—and the concentration data presented above support that assumption—it would not be possible for insurers to recover sunk losses because of past pricing mistakes by charging higher, supra-competitive premiums to current policyholders. This would be especially true if new insurers, not suffering from previous errors, could profitably undercut the inflated premiums of the old insurers. Moreover, even if in theory dramatic declines in investment returns could have contributed to the observed availability and affordability problems, it is not clear that any such losses or declines have actually occurred. Net investment income as a percentage of premiums earned in the property-casualty industry increased significantly after 1980, from 7.88% of earned premiums over the 1967–80 period to 14.62% of earned premiums over the 1981–85 period (see supra Table 1, col. 2). Thus, it is necessary to look to the property-casualty industry's underwriting gain/loss experience, rather than to the industry’s past investment experience, to explain either any financial problems in the industry or their effects on pricing and availability (see supra Table 1, col. 1).

Regardless of past experience, any decline in expected future investment returns would place upward pressure on overall premiums, but cyclical movements in expected investment income would not cause severe affordability-availability problems to appear suddenly in only certain lines. While some small part of the higher cost of property-casualty insurance today may be due to anticipations of lower investment income, the primary causes of the crisis must lie elsewhere.

79. See supra notes 66–69 and accompanying text.
81. However, as noted infra notes 102–118 and accompanying text, unanticipated changes in the standards for establishing tort liability and assessing damages can lead to large ex post losses on policies, especially in lines where there are long delays between the time that premiums are set and received and the time that claims are settled. See infra Table 6. Unless new capital can flow easily into the industry, such accumulated losses may deplete reserves and, in the presence of solvency regulation or other constraints on the ratio of premiums to reserves, contribute to a supply problem, at least in the short run.
82. This increase of 6.74% is statistically highly significant. The probability of observing an F-statistic as high as 66.10 if an increase did not occur is less than .01. See supra Table 1.
83. Even if expected net investment income were to fall to zero, the compensating proportional increase in premiums would not be greater than the previous ratio of expected net investment income
C. State Insurance Regulation

This section considers the role that state regulation may have played in causing the insurance crisis. The effects of three types of state regulation—regulation of prices, regulation of solvency, and regulation that attempts to redistribute wealth by widening risk pools—are examined.

1. Price Regulation

If insurance regulators imposed standards that raised costs or restricted output considerably but allowed prices to rise by less than would be required to clear the market, the result could be higher prices and unavailability. Alternatively, the same phenomenon could be observed if costs were rising exogenously, and regulators imposed price ceilings. Insurers would be unwilling to supply as much insurance as consumers would demand at the artificially low price.

There has been considerable research on the effects of regulation on the price of property-casualty insurance, but no consensus has emerged. Some researchers have found that regulation has raised prices, others have found no effect, and others have found reduced prices. The cost issue is similarly ambiguous. The possibility that state regulation has increased costs and reduced output cannot be ruled out, but attributing an availability problem in any particular state to state regulation would, as noted above, require that regulators in that state have also imposed price ceilings that prevented prices from rising to the same degree as costs. To the ex-

to premiums. The ratio of net investment income to premiums has been highest in the crisis lines of Medical Malpractice and Other Liability. See supra Table 3. These are also the lines with the greatest delay between when premiums are collected and losses are paid out. See infra Table 6. Nevertheless, the several hundred percent premium increases observed in these lines are far too great to be explained in any substantial measure by reductions in net investment income that never exceeded 10% to 40% of premium income.

84. For a survey of the literature on the subject, see Harrington, The Impact of Rate Regulation on Prices and Underwriting Results in the Property-Liability Insurance Industry: A Survey, 51 J. RISK & INS. 577 (1984).

85. For examples of studies finding higher prices under regulation, see Joskow, Cartels, Competition and Regulation in the Property-Liability Insurance Industry, 4 BEll J. ECON. & MGMT. SCI. 375, 424 (1973) (concluding that prices were higher in New York, where prices were regulated, than in unregulated California); Hill, Profit Regulation in Property-Liability Insurance, 10 BEll J. ECON. 172, 190 (1979) (finding higher profits under regulation in all lines examined, but studying neither medical malpractice nor general liability); Frech & Samprone, The Welfare Loss of Excess Nonprice Competition: The Case of Property-Liability Insurance Regulation, 23 J. L. & ECON. 429, 438 (1980) (finding higher prices for automobile liability insurance under regulation). But cf. Ip-polito, The Effects of Price Regulation in the Automobile Insurance Industry, 22 J. L. & ECON. 55, 66 (1979) (finding no effect of regulation on price); Munch & Smallwood, Solvency Regulation in the Property-Liability Insurance Industry: Empirical Evidence, 11 BEll J. ECON. 261 (1980) (finding that while solvency regulation appeared to reduce the number of firms, it did not seem to reduce output); Harrington, A Note on the Impact of Auto Insurance Rate Regulation, 69 REV. ECON. & STATISTICS 166 (1987) (concluding that regulation reduced prices for automobile insurance).
tent that regulation has directly affected prices, however, the effect historically has been more to facilitate pricing above competitive levels than to impose price ceilings below competitive levels. 86

Turning to evidence on the existence and effects of price ceilings, some industry observers have argued that binding price ceilings did exist, at least through 1985, in those states where availability problems were particularly severe. 87 However, the Antitrust Division's interviews with state regulators and insurance company executives have not found support for this claim in the lines and states of the crisis. 88 In addition, in some lines, unavailability appears to be a national problem and thus is not likely to be explained by state-specific actions. 89 Moreover, it is often easy for producers of complex and heterogeneous products to alter quality in a subtle and gradual manner. 90 Unless regulators can specify rigorously all aspects of a price-controlled product, their attempts to set maximum prices are likely to be frustrated by reductions in quality. Under such conditions, the effect of maximum price ceilings is more likely to be a diminution of quality than unavailability of quantity. Finally, most state regulatory control over prices has focused on the widely sold consumer lines such as Homeowners' and Automobile Liability; relatively less state price regulation affects the Other Liability or Medical Malpractice lines. 91 Thus, in the absence of recent alterations in the price regulation of the crisis lines, the explanation for the unavailability of such insurance must be found elsewhere.

2. Solvency Regulation

The next major type of state regulation to be considered is the regulation of solvency. Such regulation protects the interests of policyholders and third-party liability claimants, as well as other insurance firms that contribute to guaranty funds. 92 The inability to "experience rate" 93 individ-

86. See Joskow, supra note 85, at 396.
87. Danzon, Medical Malpractice Liability, forthcoming in LIABILITY: PERSPECTIVES AND POLICY 101-02 (R. Litan & C. Winston eds.).
88. Telephone interviews, supra note 57.
89. Danzon, supra note 87, at 101-02.
90. For example, an insurer could shift away from "occurrence" policies (that pay for losses incurred in the covered period) to "claims-made" policies (that pay only for claims filed in the covered period).
92. Every state has a guaranty fund for its property-casualty insurers. See Insurance Information Inst., supra note 11, at 34; National Comm. on Ins. Guar. Funds, State Guaranty Funds and Insurance Company Insolvency Assessment Information: 1969 Through 1986 (1987) (unpublished study on file with Mr. Clarke). If an insurer licensed to do business in a particular state goes bankrupt, the other licensed insurance companies in the state assume at least partial responsibility for the failed firm's policies through the guaranty fund.
93. "Experience rating" means the adjustment of the premium amount to reflect the likely losses attributable to the policyholder. A policyholder expected to be a poor risk would then be required to
ual insurance companies' contributions to the guaranty fund ex ante may create an incentive for insurers to underwrite policies that are too numerous or too risky, relative to their net assets. This could result in bankruptcies among insurers, and large payouts by the guaranty funds, forcing the state to raise fund contributions from the remaining, more prudent insurers.

If this form of solvency regulation has encouraged excessive free riding, it could make policies more expensive and less available. However, it is unlikely that the volume of insurance company bankruptcies and level of guaranty fund contributions are sufficient for solvency regulation to have been a major contributor to the current crisis. From 1969 through 1986, state guaranty funds have assessed insurers roughly $1.2 billion to pay for other insurers' insolvencies. This figure is over one thousand times smaller than the total premium revenues of all property-casualty insurers over the same period. Thus, it is unlikely that the effects of guaranty fund payouts on insurer revenues can explain any significant increase in insurance rates.

3. Risk Pool Regulation

The final type of state regulation to be considered involves restrictions on the size of risk pools. Insurance companies wish to keep risk pools as narrow as possible to minimize the adverse selection problem that is endemic to insurance. In several states, regulators have frustrated these

pay a larger premium for a given amount of protection than a policyholder expected to be a good risk. See Risk and Insurance, supra note 56, at 518–20.

94. The situation is analytically similar to that of federal deposit insurance. Financing such insurance with a flat-rate premium encourages depository institutions to assume more risk than if premiums were adjusted to reflect the risk of each bank's activities and investments. See Council of Economic Advisors, Annual Report of the Council of Economic Advisors in Economic Report of the President 199–200 (1986).

95. See National Comm. on Ins. Guar. Funds, supra note 92.


97. But regulations may have played a role in the crisis due to their interaction with the increased uncertainty induced by changes in tort liability. See infra notes 102–118 and accompanying text; see also R.A. Winter, supra note 7, at 490–94.

98. Adverse selection occurs when persons who have different risk characteristics are placed into the same risk pool. Persons who expect to be poor risks are more likely to buy the insurance policy offered to this pool than persons who expect to be good risks. This phenomenon, which occurs with risk-pooling, arises from the infeasibility of experience-rating every potential policyholder. See Risk and Insurance, supra note 56, at 26–27.

99. See, e.g., Mass. Gen. Laws Ann. ch. 175E, § 4(d) (West 1987) (mandating that women be charged the same automobile insurance rates as men, even though it is almost an actuarial certainty that the average man will incur greater policy losses than the average woman); see also Hartford Weighs Insurance Curb, N.Y. Times, Feb. 28, 1988, at 33, col. 1.
efforts. Mandating broader, more heterogeneous risk pools can transfer wealth from low-risk to high-risk individuals, but only at a real cost. Broader risk pools reduce the efficiency of the insurance contract by increasing the real cost of insurance to low-risk consumers, thus curtailing their demand. As enough low-risk consumers reduce their coverage, or drop their policies entirely, average insurance prices will rise, and coverage may become unavailable.  

Without seeking to minimize the real costs of this type of regulation, it is difficult to identify regulatory broadening of risk pools as a major contributor to the current crisis. These regulations may have contributed significantly to a long-term upward trend in insurance costs in some lines in particular states, but current data are not sufficiently accurate to match the lines and states in crisis.

In conclusion, although dispositive research on the effects of all three types of state regulation in the specific crisis lines is lacking, timing alone suggests the lack of a significant, or at least exclusive, connection. In the mid-1970s there was a crisis in medical malpractice insurance. The 1980s brought another crisis in Medical Malpractice, as well as in several other lines of property-casualty insurance. If regulation were to blame for these crises, one would expect to find that regulation increased during or slightly before each crisis and slackened at other times. However, we are not aware of any evidence that connects changes in regulatory intensity with crisis developments. The lack of any apparent correlation between changes in regulation and the development or resolution of availability-affordability problems in particular states suggests that state regulation is not directly to blame for the current crisis.

D. Change and Uncertainty in Tort Liability

Perhaps the most frequently offered explanation for the current crisis in property-casualty insurance involves the legal system. Significant changes in the manner in which tort liability is established and damages are assessed are cited as causes of dramatic rate increases and reductions in insurance availability. Such changes include the perceived movement from a fault-based standard to a no-fault standard of liability, eased requirements for establishing joint and several liability, the award of large damages for such noneconomic losses as pain and suffering, punitive or exemplary damages against insuring companies for bad-faith failure to acknowledge liability, and the shift from first-party to third-party tort in-
Theorietic models of insurance show that larger probabilities of claims, larger expected claim costs, a smaller number of policies issued, or greater variance in claim awards, all cause insurance premiums to rise. This rise results either from larger expected payouts by the insurance company, or from the greater loading that the insurer must place on its premiums when the variance of its exposure increases or the number of risks it insures declines.

The remainder of this section examines whether the accounting data available on recent changes in the level and variability of costs and revenues of property-casualty insurers are consistent with the theoretic effects of the observed changes in tort law. In order to support this thesis, the data should show deteriorating profits and increased instability in the industry, caused by higher and more variable claims payouts and adjustment expenses. The effects should be focused in the lines where civil adjudication of claims is most common. In fact, the statistical data do suggest both that payouts relative to premiums have become larger and more variable and that litigation and other adjustment expenses as a fraction of premiums have increased.

If changes in the tort liability system are responsible for the crisis, there should have been a deterioration in the overall financial performance of the property-casualty industry, with the greatest deterioration occurring in the crisis lines. The data strongly support this hypothesis. As outlined above, combined net income of all property-casualty insurers has dropped significantly in the 1981–85 period relative to the 1967–80 period (see supra Table 1). Moreover, deterioration in the overall operating ratios of the crisis lines was more severe than in the industry generally (see...
Comparing the 1976–80 period with the 1981–85 period, all lines of property-casualty insurance suffered a statistically significant deterioration in overall operating ratio of 8.64 percentage points, from 94.18 to 102.82. In the two noncrisis lines, Homeowners and Auto Liability, overall operating ratios rose by 6.88 points to 101.24, and by 9.42 points to 103.96, respectively. However, both the increases and the final levels are considerably greater in the two crisis lines, Other Liability and Medical Malpractice, where overall operating ratios rose by 22.86 points to 113.52 and by 21.96 points to 113.58, respectively.

A second implication of an explanation based on changes in the tort liability system is that this deterioration in overall financial performance should result from declines in underwriting gains (or increases in underwriting losses) rather than declines in net investment income. As discussed above, this implication is again strongly supported by the empirical evidence. There was a statistically significant increase in net investment income as a percentage of earned premiums between the 1967–80 period and the 1981–85 period, combined with a statistically highly significant increase in underwriting losses as a percentage of earned premiums (see supra Table 1).

This deterioration in the combined ratio of underwriting costs to premiums earned—by 11.64 percentage points, from 100.74 over the 1961–80 period to 112.38 for the 1981–85 period—cannot be explained by increased administrative expenses, which actually fell somewhat as a percentage of premiums written (see supra Table 2). The source, instead, lies entirely with the increase in the ratio of underwriting losses and adjustment expenses to earned premiums (see supra Table 3). For all lines of property-casualty, the underwriting losses incurred and loss adjustment expenses increased significantly, by 8.60 points and by 1.56 points, respectively. The noncrisis lines, Homeowners and Auto Liability, matched closely the performance of the overall industry. However, in the crisis lines of Other Liability and Medical Malpractice, the increases in the underwriting loss ratio and the loss adjustment ratio have been much more dramatic: 21.74 percentage points and 9.70 percentage points for Other Liability, and 35.50 percentage points and 6.46 percentage points for Medical Malpractice. Thus, the data are consistent with the hypothesis that the crisis is due to changes in the tort liability system. By contrast, the evidence appears to contradict the implications of the collusion and imprudent business practices explanations.

If insurers were risk neutral, the competitive premium for a policy

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108. See supra note 29.
would be the expected value of its cost.\textsuperscript{110} However, bankruptcy costs and insurance regulations require insurers to maintain minimum solvency levels to limit the probability of default.\textsuperscript{111} This requires insurers to load (raise) premiums by a factor over actuarially fair premiums in order to ensure a sufficiently low probability of business failure. As shown in theoretic models,\textsuperscript{112} this load factor is higher the greater the uncertainty with respect to an insurer’s future net income. Thus, changes in the legal environment that increase the variability of losses and adjustment expenses would cause premiums to rise. Such coverage could become “unaffordable.” Should variability be so great as to exceed the ability or willingness of insurers to cope with the resultant risk to their financial solvency, coverage might become unavailable at almost any price.

As noted above,\textsuperscript{113} the most significant increases in the variability\textsuperscript{114} of property-casualty insurance financial ratios have been in those ratios describing loss payouts and loss adjustment expenses (see \textit{supra} Tables 3 and 4). Although the increase in the variance of the overall operating ratio was not statistically significant for All Lines of Property-Casualty combined, variability in the loss incurred and loss adjustment ratios increased significantly. The two noncrisis lines showed no significant increases in variability in either their overall operating ratios or any of their component ratios. By contrast, the crisis line of Other Liability exhibited a substantial increase in overall variability as well as substantial increases in the variability of underwriting losses.\textsuperscript{115}

One source of the increased financial uncertainty observed in the crisis

\textsuperscript{110} The expected value of a policy is calculated by multiplying its cost to the insurer when a claim is made by the ex ante probability that such a claim will be made. E. Mansfield, \textit{supra} note 17, at 121; \textit{Risk and Insurance, supra} note 56, at 529.

\textsuperscript{111} See \textit{supra} notes 92–97 and accompanying text. Note that such state solvency regulations should not be regarded as a “fault” that bears responsibility for the instant crisis. Rather, they are a necessary and fundamental characteristic of the U.S. insurance system. Without state guaranties of insurer solvency, fewer people would buy insurance, and economic welfare likely would be lower. See \textit{Insurance Information Inst., supra} note 11, at 6; \textit{Risk and Insurance, supra} note 56, at 618.


\textsuperscript{113} See \textit{supra} notes 11–32 and accompanying text.

\textsuperscript{114} We measure the variability of a financial ratio by its standard deviation. Normalized comparisons of variability across ratios with different mean values can be made by computing each ratio’s coefficient of variation. However, as Ralph A. Winter has kindly pointed out to the authors, the relevant definition of variability is uncertainty in the prediction of ratios over the life of policies currently being issued. To the extent that these ratios follow a predictable cycle or trend, the standard deviation will overestimate the absolute level of uncertainty. A more accurate measure would be the standard error of a predictive equation for the ratios over time. See E. Mansfield, \textit{supra} note 17, at 423. Preliminary results from such an “errors-in-forecast” model suggest that the standard deviation underestimates the severity of the actual increase in uncertainty.

\textsuperscript{115} While Medical Malpractice displays levels of instability similar to those displayed by Other Liability, the rise in this instability is less, suggesting a longer-lived state of crisis for Medical Malpractice. See \textit{supra} notes 11–32 and accompanying text.
lines may be the greater severity of delays before final settlement (see Table 6). For all lines of property-casualty insurance, 18.30% of claims for losses incurred in 1982, for example, were unpaid at the end of 1985. For Other Liability, however, 44.79% of expenses for losses incurred in 1982 were unpaid at the end of 1985, and for Medical Malpractice, 64.42% of expenses incurred in 1982 were unpaid at the end of 1985. Such delays suggest a more uncertain and thus more costly tort liability process.

Table 6

Fraction of Total Losses and Loss Expenses that Remain Currently Unpaid

<table>
<thead>
<tr>
<th>Year When Loss Was Incurred</th>
<th>Total All Lines</th>
<th>Various Multiple Peril</th>
<th>Auto Liability</th>
<th>Other Liability</th>
<th>Medical Malpractice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prior to 1976</td>
<td>2.42</td>
<td>.55</td>
<td>.26</td>
<td>6.46</td>
<td>15.66</td>
</tr>
<tr>
<td>1976</td>
<td>5.05</td>
<td>.88</td>
<td>1.02</td>
<td>12.32</td>
<td>24.88</td>
</tr>
<tr>
<td>1977</td>
<td>5.45</td>
<td>1.20</td>
<td>1.34</td>
<td>13.34</td>
<td>27.62</td>
</tr>
<tr>
<td>1978</td>
<td>6.43</td>
<td>1.87</td>
<td>1.57</td>
<td>15.50</td>
<td>32.74</td>
</tr>
<tr>
<td>1979</td>
<td>7.75</td>
<td>2.26</td>
<td>2.21</td>
<td>19.78</td>
<td>39.21</td>
</tr>
<tr>
<td>1980</td>
<td>9.70</td>
<td>3.31</td>
<td>3.45</td>
<td>24.89</td>
<td>46.24</td>
</tr>
<tr>
<td>1981</td>
<td>13.40</td>
<td>5.74</td>
<td>6.19</td>
<td>33.80</td>
<td>54.52</td>
</tr>
<tr>
<td>1982</td>
<td>18.30</td>
<td>8.79</td>
<td>10.95</td>
<td>44.79</td>
<td>64.42</td>
</tr>
<tr>
<td>1983</td>
<td>26.42</td>
<td>13.54</td>
<td>19.77</td>
<td>59.92</td>
<td>76.57</td>
</tr>
<tr>
<td>1984</td>
<td>38.96</td>
<td>20.87</td>
<td>34.80</td>
<td>74.60</td>
<td>87.02</td>
</tr>
<tr>
<td>1985</td>
<td>65.69</td>
<td>44.26</td>
<td>65.68</td>
<td>90.80</td>
<td>96.98</td>
</tr>
</tbody>
</table>

Also indicative of a more uncertain and costly tort process are similar statistics that show larger claims adjustment expenses as a fraction both of premium income and of incurred losses. The percent of all premium income going towards loss adjustment expenses rose by an average of 1.56 points, from 9.24 up to 10.80, for all property-casualty lines (see supra Table 3). But in the specific coverages most afflicted by the current crisis, this percentage rose by 9.70 points for Other Liability and by 6.46 points for Medical Malpractice. In addition, note that adjustment expense fractions for the crisis lines are more than twice the industry average (see Table 7).

Table 7\textsuperscript{117}

Adjustment Expenses as a Percent of Losses Incurred

<table>
<thead>
<tr>
<th>Years</th>
<th>Total All Lines</th>
<th>Homeowners'</th>
<th>Auto Liability</th>
<th>Other Liability</th>
<th>Medical Malpractice</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>avg. std. dev.</td>
<td>avg. std. dev.</td>
<td>avg. std. dev.</td>
<td>avg. std. dev.</td>
<td>avg. std. dev.</td>
</tr>
<tr>
<td>1976-1980</td>
<td>14.53 .22</td>
<td>12.01 .60</td>
<td>17.27 .28</td>
<td>34.98 .52</td>
<td>38.98 3.60</td>
</tr>
<tr>
<td>1981-1985</td>
<td>14.96 .34</td>
<td>12.44 .46</td>
<td>15.90 .86</td>
<td>37.93 3.11</td>
<td>31.72 2.67</td>
</tr>
</tbody>
</table>

F statistic for equality of means or variances

<table>
<thead>
<tr>
<th></th>
<th>avg. std. dev.</th>
<th>avg. std. dev.</th>
<th>avg. std. dev.</th>
<th>avg. std. dev.</th>
<th>avg. std. dev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1976-1980</td>
<td>5.53**</td>
<td>2.37 1.68</td>
<td>11.66***</td>
<td>9.65**</td>
<td>13.17***</td>
</tr>
<tr>
<td>1981-1985</td>
<td>13.17***</td>
<td>4.37* 36.36***</td>
<td></td>
<td></td>
<td>2.18 1.82</td>
</tr>
</tbody>
</table>

***Significant at .01 level
**Significant at .05 level
*Significant at .10 level

The overall pattern in the data is thus one of high and increasing cost ratios for underwriting losses and adjustment expenses, especially in the crisis lines, and high and increased variability in these ratios for the crisis lines. These changes can cause dramatic increases in premium rates. Because of the increased load factors required by increased uncertainty, premium increases can be expected to be significantly greater than even the already large increases in costs in those lines. Increased cost ratios and uncertainty in crisis lines, combined with solvency imperatives, also cause unavailability problems in those lines. Thus, given the findings of several studies that changes in the tort liability system have caused both higher expected awards and greater variability in such awards,\textsuperscript{118} the overall pattern of the data is consistent with explanations for the property-casualty crisis grounded in these changes in the tort liability system.

Conclusion

The Article's analysis suggests several conclusions. First, the extent of a true "crisis" in property-casualty insurance is limited. Although certain lines exhibit crisis characteristics, such as increasing loss ratios and instability, these features are much more muted in the industry generally. Second, inefficient or collusive business practices by insurers are unlikely causes of the current crisis. Competition among insurers and potential insurers is adequate to prevent collusive price increases and coverage withdrawals.\textsuperscript{119} As a result, repeal of the McCarran-Ferguson Act would be

\textsuperscript{117} Computed from Table 3, supra.

\textsuperscript{118} For a discussion of these studies, see Harrington & Litan, Causes of the Liability Insurance Crisis, 239 SCIENCE 737, 740-41 (1988).

\textsuperscript{119} This reasoning is not accepted universally. In a recently filed antitrust suit, eight state attorneys general have alleged that concerted action by several insurance companies, coupled with coercive power exerted by trade associations such as the Insurance Services Office, was sufficient to eliminate
Sources of the Insurance Crisis

unlikely to have any significant effect on the pricing practices of the industry. In addition, investment returns have not been low enough to have induced insurers to post extraordinary premium hikes. There is, however, empirical and theoretical evidence that changes in the structure of tort liability and insurance regulation may be responsible for crisis-like developments in certain lines of property-casualty insurance. To the extent that relaxed fault standards and damage justification have increased the amount, frequency, and variability of payouts, insurance premiums are likely to have risen, and these kinds of coverage become more scarce.

Continued worsening of these crisis characteristics is not assured. Unless principles of civil liability continue to change, allowing continued expansion (and its attendant uncertainty) of tort liability, insurers' rates should stabilize at the levels necessary to support the required level of payouts. To the extent that reduced uncertainty concerning future liability principles allows load factors to decline, or reforms in civil procedure narrow tort liability, rates may even decline somewhat from their current high plateaus. The financial condition of insurers may improve as well.

There is some evidence that stabilization is beginning to occur. Director and Officer, and General Liability policies that were formerly unavailable, or unavailable for the coverage amounts desired, now seem to be returning to the market—sometimes at reduced rates. Similarly, insurer profits are beginning to rebound. The Insurance Information Institute reports that 1987 operating profits for property-casualty insurers reached $13.7 billion, more than double those of 1986. Although such individual developments are not dispositive of a larger trend, they do indicate that the crisis may be easing.

certain property-casualty coverages from the market. See States and Insurance Industry Battling on Liability Coverage, supra note 47; see also supra notes 41–76 and accompanying text, indicating that such alleged actions are unlikely to be sufficient to produce such results. But see Angoff, supra note 6.

120. See Liability Insurance Gets Cheaper, More Comprehensive and Easier to Find, Wall St. J., Dec. 31, 1987, at 1, col. 5; Aetna Boosts Coverage for 'Outside' Directors, Newark Star-Ledger, Feb. 24, 1987, at 41, col. 5 (quoting Aetna official as saying that Aetna's expanded coverage is available only in states that “have passed laws reforming their civil liability law in a manner which limits the exposure of members of boards of directors to stockholders' and other suits”).
