Trends, Challenges and Opportunities in Personal Lines Insurance in 2016 & Beyond

Farm Bureau Managers Conference
New Orleans, LA
June 7, 2016

Download at www.iii.org/presentations

Robert P. Hartwig, Ph.D., CPCU, President & Economist
Insurance Information Institute  ♦  110 William Street  ♦  New York, NY 10038
Tel: 212.346.5520  ♦  Cell: 917.453.1885  ♦  bobh@iii.org  ♦  www.iii.org
Distribution of Direct Premiums Written by Segment/Line, 2014

**Distribution Facts**

- Personal/Commercial lines split has been about 50/50 for many years
- Pvt. Passenger Auto is by far the largest line of insurance and is currently the most important source of industry profits
- Billions of additional dollars in homeowners insurance premiums are written by state-run residual market plans

**2014**

- Commercial Lines $282.5B/51%
- Homeowners $86.1B/15%
- Pvt. Pass Auto $190.3B/34%

Sources: A.M. Best; Insurance Information Institute research.

<table>
<thead>
<tr>
<th>Year</th>
<th>ROE* (%)</th>
<th>ROAS1 (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>9.6</td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td>12.7</td>
<td></td>
</tr>
<tr>
<td>2007</td>
<td>10.9</td>
<td></td>
</tr>
<tr>
<td>2008</td>
<td>0.1</td>
<td></td>
</tr>
<tr>
<td>2009</td>
<td>5.0</td>
<td></td>
</tr>
<tr>
<td>2010</td>
<td>6.6</td>
<td></td>
</tr>
<tr>
<td>2011</td>
<td>3.5</td>
<td></td>
</tr>
<tr>
<td>2012</td>
<td>5.9</td>
<td></td>
</tr>
<tr>
<td>2013</td>
<td>10.2</td>
<td></td>
</tr>
<tr>
<td>2014</td>
<td>8.4</td>
<td></td>
</tr>
<tr>
<td>2015</td>
<td>8.4</td>
<td></td>
</tr>
</tbody>
</table>

- ROE figures are GAAP; 1 Return on avg. surplus. Excluding Mortgage & Financial Guaranty insurers yields a 8.2% ROAS in 2014, 9.8% ROAS in 2013, 6.2% ROAS in 2012, 4.7% ROAS for 2011, 7.6% for 2010 and 7.4% for 2009; 2015E is annualized figure based actual figure through Q3 of $44.0

**Sources:** A.M. Best, ISO; Insurance Information Institute
Profitability Peaks & Troughs in the P/C Insurance Industry, 1975 – 2015

*Profitability = P/C insurer ROEs. 2011-15 figures are estimates based on ROAS data. Note: Data for 2008-2014 exclude mortgage and financial guaranty insurers.

Source: Insurance Information Institute; NAIC, ISO, A.M. Best, Conning
P/C Profitability Is Both by Cyclicality and Ordinary Volatility

Hugo
Andrew, Iniki
Northridge
Lowest CAT Losses in 15 Years
Sept. 11
Katrina, Rita, Wilma
4 Hurricanes
Financial Crisis*
Record Tornado Losses
Low CATs
Modestly higher CATs

Sources: ISO, Fortune; Insurance Information Institute.
As Recently as 2001, Insurers Paid Out Nearly $1.16 for Every $1 in Earned Premiums

Heavy Use of Reinsurance Lowered Net Losses

Relatively Low CAT Losses, Reserve Releases

Relatively Low CAT Losses, Reserve Releases

Higher CAT Losses, Shrinking Reserve Releases, Toll of Soft Market

As of 2015, the best combined ratio was 97.8, the lowest since 1949 (87.6).

Cyclical Deterioration

Avg. CAT Losses, More Reserve Releases

3 Consecutive Years of U/W Profits: First Time Since 1971-73

Sources: A.M. Best, ISO (2014-2015); Figure for 2010-2013 is from A.M. Best P&C Review and Preview, Feb. 16, 2016.

Return on Equity by Financial Services Sector vs. Fortune 500, 2004-2014*

(Percent)

-2% 0% 2% 4% 6% 8% 10% 12% 14% 16% 18%
04 05 06 07 08 09 10 11 12 13 14
Fortune 500: 13.9% Commercial Bank: 9.8% Life: 8.2% P/C: 7.1%

Average: 2004 - 2014

Banks and Insurers Have Substantially Underperformed the Fortune 500 Since the Financial Crisis

*GAAP basis.
Sources: ISO, Fortune; Insurance Information Institute.
Reserve releases are expected to gradually taper off slowly, but will continue to benefit the bottom line and combined ratio through at least 2017.

Source: A.M. Best; Barclays research for estimates.
Top Insurance Issues: What’s Hot, What’s Not

Eclectic Mix of Issues Garnered Media Attention So Far in 2016

Interest in Tech Issues Remains High
### Top Issues, P/C, First Five Months 2015 vs. First Five Months* 2016

<table>
<thead>
<tr>
<th>Top Issues</th>
<th>2015</th>
<th>2016</th>
<th>% Increase/Decrease</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auto</td>
<td>12,506</td>
<td>15,872</td>
<td>27%</td>
</tr>
<tr>
<td>Solvency</td>
<td>5,944</td>
<td>13,174</td>
<td>122%</td>
</tr>
<tr>
<td>Driverless Cars</td>
<td>3,138</td>
<td>8,909</td>
<td>184%</td>
</tr>
<tr>
<td>Homeowners</td>
<td>5,755</td>
<td>8,113</td>
<td>41%</td>
</tr>
<tr>
<td>Cyber Insurance</td>
<td>4,048</td>
<td>7,489</td>
<td>85%</td>
</tr>
<tr>
<td>Wildfires</td>
<td>614</td>
<td>5,961</td>
<td>871%</td>
</tr>
<tr>
<td>Market Conditions</td>
<td>4,122</td>
<td>5,716</td>
<td>39%</td>
</tr>
<tr>
<td>Tort</td>
<td>2,536</td>
<td>5,081</td>
<td>100%</td>
</tr>
<tr>
<td>Earthquakes</td>
<td>3,502</td>
<td>4,854</td>
<td>39%</td>
</tr>
<tr>
<td>Insurance Fraud</td>
<td>4,582</td>
<td>4,764</td>
<td>4%</td>
</tr>
<tr>
<td>Terrorism</td>
<td>7,815</td>
<td>4,247</td>
<td>-46%</td>
</tr>
<tr>
<td>Climate Change</td>
<td>1,879</td>
<td>4,151</td>
<td>121%</td>
</tr>
<tr>
<td>Pay-As-You Go/Telematics</td>
<td>2,162</td>
<td>4,104</td>
<td>90%</td>
</tr>
<tr>
<td>Tornadoes</td>
<td>2,257</td>
<td>2,953</td>
<td>31%</td>
</tr>
<tr>
<td>Hurricanes</td>
<td>1,451</td>
<td>2,576</td>
<td>78%</td>
</tr>
<tr>
<td>Flood Insurance</td>
<td>2,223</td>
<td>2,437</td>
<td>10%</td>
</tr>
<tr>
<td>Workers Comp</td>
<td>1,350</td>
<td>1,843</td>
<td>37%</td>
</tr>
<tr>
<td>Sharing Economy</td>
<td>503</td>
<td>1,352</td>
<td>169%</td>
</tr>
<tr>
<td>Drones and Insurance</td>
<td>409</td>
<td>709</td>
<td>73%</td>
</tr>
<tr>
<td>Price Optimization</td>
<td>329</td>
<td>690</td>
<td>110%</td>
</tr>
<tr>
<td>Winter Storms &amp; Insurance</td>
<td>522</td>
<td>666</td>
<td>28%</td>
</tr>
<tr>
<td>Aviation</td>
<td>241</td>
<td>416</td>
<td>73%</td>
</tr>
<tr>
<td>Gun Liability</td>
<td>98</td>
<td>314</td>
<td>220%</td>
</tr>
<tr>
<td>Systemic Risk</td>
<td>189</td>
<td>236</td>
<td>25%</td>
</tr>
<tr>
<td>Auto Affordability &amp; CFA</td>
<td>247</td>
<td>155</td>
<td>-37%</td>
</tr>
<tr>
<td>Credit Scoring</td>
<td>84</td>
<td>152</td>
<td>81%</td>
</tr>
<tr>
<td>Riots</td>
<td>944</td>
<td>143</td>
<td>-85%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>69,041</strong></td>
<td><strong>106,368</strong></td>
<td><strong>54%</strong></td>
</tr>
</tbody>
</table>

*Through May 15.

1Based on a search of Meltwater News
### I.I.I. Media Index, P/C, First Five Months 2015 vs. First Five Months* 2016

#### Percent Increase/Decrease from Previous Year

<table>
<thead>
<tr>
<th>Topic</th>
<th>Percent Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wildfires</td>
<td>871%</td>
</tr>
<tr>
<td>Gun Liability</td>
<td>122%</td>
</tr>
<tr>
<td>Driverless Cars</td>
<td>121%</td>
</tr>
<tr>
<td>Sharing Economy</td>
<td>110%</td>
</tr>
<tr>
<td>Solvency</td>
<td>100%</td>
</tr>
<tr>
<td>Climate Change</td>
<td>90%</td>
</tr>
<tr>
<td>Price Optimization</td>
<td>85%</td>
</tr>
<tr>
<td>Tort</td>
<td>81%</td>
</tr>
<tr>
<td>Pay-As-You Go/Telematics</td>
<td>78%</td>
</tr>
<tr>
<td>Cyber Insurance</td>
<td>73%</td>
</tr>
<tr>
<td>Credit Scoring</td>
<td>73%</td>
</tr>
<tr>
<td>Hurricanes</td>
<td>41%</td>
</tr>
<tr>
<td>Drones and Insurance</td>
<td>39%</td>
</tr>
<tr>
<td>Systemic Risk</td>
<td>39%</td>
</tr>
<tr>
<td>Auto</td>
<td>37%</td>
</tr>
<tr>
<td>Tornadoes</td>
<td>37%</td>
</tr>
<tr>
<td>Winter Storms &amp; Insurance</td>
<td>31%</td>
</tr>
<tr>
<td>Workers Comp</td>
<td>28%</td>
</tr>
<tr>
<td>Earthquakes</td>
<td>27%</td>
</tr>
<tr>
<td>Market Conditions</td>
<td>25%</td>
</tr>
<tr>
<td>Homeowners</td>
<td>25%</td>
</tr>
<tr>
<td>Credit Scoring</td>
<td>10%</td>
</tr>
<tr>
<td>Aviation</td>
<td>4%</td>
</tr>
<tr>
<td>Insurance Fraud</td>
<td>-4%</td>
</tr>
<tr>
<td>Share Economy</td>
<td>-10%</td>
</tr>
<tr>
<td>Auto Affordability &amp; CFA</td>
<td>-37%</td>
</tr>
<tr>
<td>Terrorism</td>
<td>-46%</td>
</tr>
<tr>
<td>Riots</td>
<td>-85%</td>
</tr>
</tbody>
</table>

*Through May 15.

1 Based on a search of Meltwater News
Auto & Home Insurance:
State of the Personal Lines Market

Results Have Been Fairly Strong and Stable in Recent Years

Dearth of Major CATs, Pricing Discipline Has Helped
Personal Lines Profitability

Profitability of Auto and Homeowners Lines Varies Tremendously Over Time and Across States
Return on Net Worth (RNW) All Lines: 2005-2014 Average

Commercial lines have tended to be more profitable than personal lines over the past decade, but Homeowners is on the rise due to the dearth of major catastrophes in recent years.

Source: NAIC; Insurance Information Institute.

Pvt. Pass. Auto Has Consistently Outperformed the P-C Industry as a Whole. Homeowners Volatility is Associated Primarily with Coastal Exposure Issues

Average RNW: 1990-2014*
All P-C Lines: 7.8%
PP Auto: 8.1%
Homeowners: 1.9%**

*Latest available.
**If 1992, the year of Hurricane Andrew is excluded, the resulting homeowners RNW is 4.3%.
Sources: NAIC; Insurance Information Institute.

(Average RNW: 1990-2013*)

All P-C Lines: 7.8%
PP Auto: 8.1%
Homeowners: 4.3%**

Pvt.Pass. Auto Has Consistently Outperformed the P-C Industry as a Whole. Homeowners Volatility is Associated Primarily With Coastal Exposure Issues

*Latest available.
**Excludes 1992, the year of Hurricane Andrew. If 1992 is included the resulting homeowners RNW is 1.9%
Sources: NAIC; Insurance Information Institute.
Average: Highest 25 States

Hawaii was the most profitable state for auto insurers from 2005-2014

Sources: NAIC; Insurance Information Institute
RNW Pvt. Passenger Auto, 2005-2014 Average: Lowest 25 States

Sources: NAIC; Insurance Information Institute

Michigan was the least profitable state for auto insurers from 2005-2014.
RNW Homeowners Insurance, 2005-2014 Average: Highest 25 States

Hawaii was the most profitable state for home insurers from 2005-2014 due to the absence of hurricanes during this period.
Hurricanes Katrina and Rita made Louisiana and Mississippi the least profitable states for home insurers from 2005-2014.
INVESTMENTS: THE NEW REALITY

Investment Performance is a Key Driver of Profitability

Depressed Yields Will Necessarily Influence Underwriting & Pricing
Stock market in 2016 got off to its worst start ever but has now improved. Volatility is endemic to stock markets—and may be increasing—but there is no persistent downward trend over long periods of time.
Due to persistently low interest rates, investment income fell in 2012, 2013 and 2014 but showed a small (1.9%) increase in 2015—a trend that may continue.

Investment gains consist primarily of interest and stock dividends. Sources: ISO; Insurance Information Institute.
Yields on 10-Year U.S. Treasury Notes have been essentially below 5% for more than a decade.

Despite the Fed’s December 2015 rate hike, yields remain low though short-term yields have seen some gains; Yield curve is flattening.

Since roughly 80% of P/C bond/cash investments are in 10-year or shorter durations, most P/C insurer portfolios will have low-yielding bonds for years to come.

*Monthly, constant maturity, nominal rates, through May 20, 2016.

Treasury yield curve remains near its most depressed level in at least 45 years. Investment income is depressed as a result. Fed began to raise rates in Dec. 2015, but yields unlikely to return to pre-crisis levels anytime soon.

The Fed Began to Raise Rates in Dec. 2015 but Market Volatility and Weakness Abroad Have Made Additional Hikes Difficult

*As of May 20, 2016.
Source: Federal Reserve Board of Governors: [http://www.federalreserve.gov/releases/h15/data.htm](http://www.federalreserve.gov/releases/h15/data.htm); Insurance Information Institute.
Two main shifts over these years. From 2008 to 2011-12, from bonds with longer maturities to bonds with shorter maturities. But beginning in 2013, the reverse. Note, however, that the percentages in bonds with maturities over 10 years continues to drop.
Distribution of Invested Assets: P/C Insurance Industry, 2014

$ Billions

- Bonds, 61%
- Stocks, 23%
- Cash, Cash Equiv. & ST Investments, 6%
- All Other, 10%

Total Invested Assets = $1.533 Trillion

The yield on invested assets remains low relative to pre-crisis yields. The Fed’s plan to raise interest rates in late 2015 has already pushed up some yields, albeit quite modestly.

*2015 figure is the average of the four quarters ending in 2015:Q2.
Sources: SNL Financial; Insurance Information Institute
The yield on invested assets remains low relative to pre-crisis yields. The Fed’s plan to raise interest rates in late 2015 has pushed up some yields, albeit quite modestly.

Sources: A.M. Best; 2015E-2016P figures from A.M. Best P/C Review and Preview, Feb. 2016; Insurance Information Institute
P/C carrier yields have been falling for over a decade, reflecting the long downtrend in prevailing interest rates. Even as prevailing rates rise in the next few years, portfolio yields are unlikely to rise quickly, since low yields of recent years are “baked in” to future returns.

Sources: NAIC, via SNL Financial; Insurance Information Institute.
A full normalization of interest rates is unlikely until 2019, more than a decade after the onset of the financial crisis.

The end of the Fed’s QE program in 2014 and a stronger economy have yet to push longer-term yields much higher.

Sources: Blue Chip Economic Indicators (4/16 for 2016 and 2017; for 2018-2021 3/16 issue); Insurance Info. Institute.
Slack in the U.S. economy and falling energy prices suggests that inflationary pressures should remain subdued for an extended period of times.

Inflation peaked at 5.6% in August 2008 on high energy and commodity crisis. The recession and the collapse of the commodity bubble reduced inflationary pressures in 2009/10.

Inflationary expectations have slipped (due in part to falling energy costs) allowing the Fed to maintain low interest rates.

Sources: US Bureau of Labor Statistics; Blue Chip Economic Indicators, 4/16 (forecasts).
Insurers Posted Net Realized Capital Gains in 2010 - 2014 Following Two Years of Realized Losses During the Financial Crisis. Realized Capital Losses Were a Primary Cause of 2008/2009’s Large Drop in Profits and ROE.

*Through Q3 2015.
Sources: A.M. Best, ISO, SNL, Insurance Information Institute.
Total Investment Gains Were Down Slightly in 2014 as Low Interest Rates Pressured Investment Income but Realized Capital Gains Remained Robust

1 Investment gains consist primarily of interest, stock dividends and realized capital gains and losses.
* 2005 figure includes special one-time dividend of $3.2B; 2015 figure is through Q3 2015.
Sources: ISO, SNL; Insurance Information Institute.
Reduction in Combined Ratio Necessary to Offset 1% Decline in Investment Yield to Maintain Constant ROE, by Line*

Lower Investment Earnings Place a Greater Burden on Underwriting and Pricing Discipline

*Based on 2008 Invested Assets and Earned Premiums
**US domestic reinsurance only
Source: A.M. Best; Insurance Information Institute.
Profitability & Politics

How Is Profitability Affected by the President’s Political Party?
### P/C Insurance Industry ROE by Presidential Administration, 1950-2014*

<table>
<thead>
<tr>
<th>President</th>
<th>ROE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carter</td>
<td>16.43%</td>
</tr>
<tr>
<td>Reagan II</td>
<td>15.10%</td>
</tr>
<tr>
<td>Obama II</td>
<td>8.93%</td>
</tr>
<tr>
<td>Nixon</td>
<td>8.93%</td>
</tr>
<tr>
<td>Clinton I</td>
<td>8.65%</td>
</tr>
<tr>
<td>G.H.W. Bush</td>
<td>8.35%</td>
</tr>
<tr>
<td>G.W. Bush II</td>
<td>8.33%</td>
</tr>
<tr>
<td>Clinton II</td>
<td>7.98%</td>
</tr>
<tr>
<td>Reagan I</td>
<td>7.68%</td>
</tr>
<tr>
<td>Nixon/Ford</td>
<td>6.98%</td>
</tr>
<tr>
<td>Truman</td>
<td>6.97%</td>
</tr>
<tr>
<td>Eisenhower I</td>
<td>5.43%</td>
</tr>
<tr>
<td>Eisenhower II</td>
<td>5.03%</td>
</tr>
<tr>
<td>G.W. Bush I</td>
<td>4.83%</td>
</tr>
<tr>
<td>Obama I</td>
<td>4.68%</td>
</tr>
<tr>
<td>Johnson</td>
<td>4.43%</td>
</tr>
<tr>
<td>Kennedy/Johnson</td>
<td>3.55%</td>
</tr>
</tbody>
</table>

**OVERALL RECORD: 1950-2015**

Democrats 7.72%
Republicans 7.85%

Party of President has marginal bearing on profitability of P/C insurance industry

*Truman administration ROE of 6.97% based on 3 years only, 1950-52; Source: Insurance Information Institute
P/C insurance Industry ROE by Presidential Party Affiliation, 1950-2015*

BLUE = Democratic President
RED = Republican President

*2015 data is through Q3.
Source: Insurance Information Institute
## Trump vs. Clinton: Issues that Matter to P/C Insurers

<table>
<thead>
<tr>
<th>Issue</th>
<th>Trump</th>
<th>Clinton</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economy</td>
<td><strong>Supply Side-Like Philosophy:</strong> Lower taxes → Faster real GDP growth; Deficits likely grow as tax cuts are combined with targeted increased spending on Homeland Security, Defense, etc.</td>
<td><strong>Keynesian Philosophy:</strong> More government spending on infrastructure, education, social services; Deficits likely increase as tax increases likely difficult to pass</td>
</tr>
<tr>
<td>Interest Rates</td>
<td>May trend higher with larger deficits; Shift from monetary policy to fiscal focus (tax cuts, government spending)</td>
<td>Status quo at the Fed; Net impact on interest rates unclear</td>
</tr>
<tr>
<td>Taxes</td>
<td>Favors lower tax rates for corporate and personal income tax rates; Tax code overhaul?</td>
<td>Unlikely to reduce taxes or embark on major overhaul of tax code</td>
</tr>
<tr>
<td>International Trade</td>
<td>Protectionist Tendencies (appeal primarily to manufacturing sector)</td>
<td>Has criticized Trans-Pacific Partnership but is a realist on international matters</td>
</tr>
<tr>
<td>Tort System</td>
<td>Doesn’t like trial lawyers but seems to like filing lawsuits</td>
<td>Status Quo</td>
</tr>
<tr>
<td>Health Care</td>
<td>ACA should be repealed &amp; replaced</td>
<td>Incremental Change</td>
</tr>
</tbody>
</table>
2015 Property and Casualty Insurance Regulatory Report Card

Not Graded: District of Columbia

Source: R Street Insurance Regulation Report Card, December 2015
Personal Lines
Underwriting Performance

Auto, Home Underwriting Performance Exhibit Periods of Both Stability and Volatility
Private Passenger Auto Underwriting Performance Is Showing the Strains of Rising Frequency (and Severity) Trends in Many States

Sources: A.M. Best (1990-2014); Conning (2015E-17F); Insurance Information Institute.
Homeowners Insurance Combined Ratio: 1990–2017F

Homeowners Performance Has Improved Markedly Since the 2011/12’s Large Cat Losses. Extreme Regional Variation Can Be Expected Due to Local Catastrophe Loss Activity. Results in 2016 Will Be Impacted by Severe Spring Weather.

Sources: A.M. Best (1990-2014); Insurance Information Institute (2015E-17F).
Homeowners Multi-Peril Loss & ALAE Ratio, 2014: Highest 25 States

MT had the worst loss ratio in 2014, followed by NE and SD…

Sources: SNL Financial; Insurance Information Institute.
### Homeowners Multi-Peril Loss & ALAE Ratio, 2014: Lowest 25 States and DC

<table>
<thead>
<tr>
<th>State</th>
<th>Loss &amp; ALAE Ratio (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CA</td>
<td>50.1</td>
</tr>
<tr>
<td>NJ</td>
<td>49.3</td>
</tr>
<tr>
<td>OH</td>
<td>48.9</td>
</tr>
<tr>
<td>TX</td>
<td>48.3</td>
</tr>
<tr>
<td>AL</td>
<td>47.7</td>
</tr>
<tr>
<td>ME</td>
<td>47.3</td>
</tr>
<tr>
<td>KY</td>
<td>46.0</td>
</tr>
<tr>
<td>NC</td>
<td>45.8</td>
</tr>
<tr>
<td>NM</td>
<td>45.6</td>
</tr>
<tr>
<td>NH</td>
<td>45.2</td>
</tr>
<tr>
<td>NY</td>
<td>44.1</td>
</tr>
<tr>
<td>NV</td>
<td>43.2</td>
</tr>
<tr>
<td>UT</td>
<td>42.0</td>
</tr>
<tr>
<td>MN</td>
<td>41.0</td>
</tr>
<tr>
<td>KS</td>
<td>40.8</td>
</tr>
<tr>
<td>DC</td>
<td>40.2</td>
</tr>
<tr>
<td>CT</td>
<td>37.7</td>
</tr>
<tr>
<td>VA</td>
<td>37.5</td>
</tr>
<tr>
<td>AK</td>
<td>37.1</td>
</tr>
<tr>
<td>RI</td>
<td>36.2</td>
</tr>
<tr>
<td>MA</td>
<td>32.8</td>
</tr>
<tr>
<td>ND</td>
<td>32.3</td>
</tr>
<tr>
<td>LA</td>
<td>28.0</td>
</tr>
<tr>
<td>HI</td>
<td>27.3</td>
</tr>
<tr>
<td>FL</td>
<td>25.7</td>
</tr>
</tbody>
</table>

**OK and FL had the best performances in 2014! Traditionally high cat-loss states did well last year due to unusually low cat activity.**

**Sources:** SNL Financial; Insurance Information Institute.
Insured Catastrophe Losses

2013/14 and YTD 2015 Experienced Below Average CAT Activity After Very High CAT Losses in 2011/12

Winter Storm Losses Far Above Average in 2014 and 2015
U.S. Insured Catastrophe Losses

($ Billions, $ 2015)

2013/14 Were Welcome Respites from 2011/12, among the Costliest Years for Insured Disaster Losses in US History. Longer-term Trend is for more—not fewer—Costly Events

2012 was the 3rd most expensive year ever for insured CAT losses

Note: 2001 figure includes $20.3B for 9/11 losses reported through 12/31/01 ($25.9B 2011 dollars). Includes only business and personal property claims, business interruption and auto claims. Non-prop/BI losses = $12.2B ($15.6B in 2011 dollars.)

Sources: Property Claims Service/ISO; Insurance Information Institute.
Combined Ratio Points Associated with Catastrophe Losses: 1960 – 2015E*

*2010s represent 2010-2015E.

Notes: Private carrier losses only. Excludes loss adjustment expenses and reinsurance reinstatement premiums. Figures are adjusted for losses ultimately paid by foreign insurers and reinsurers.

Inflation Adjusted U.S. Catastrophe Losses by Cause of Loss, 1995–2014

1. Catastrophes are defined as events causing direct insured losses to property of $25 million or more in 2014 dollars.
2. Excludes snow.
3. Does not include NFIP flood losses
4. Includes wildland fires
5. Includes civil disorders, water damage, utility disruptions and non-property losses such as those covered by workers compensation.

Source: ISO’s Property Claim Services Unit.

- **Hurricanes & Tropical Storms**, $161.2
- **Wind/Hail/Flood** (3), $21.4
- **Tornadoes** (2), $154.9
- **Terrorism**, $24.5
- **Winter Storms**, $26.9
- **Fires** (4), $6.0
- **Geological Events**, $0.5
- **Other** (5), $0.2
- **Wind losses are by far cause the most catastrophe losses, even if hurricanes/Tropical Storm losses are excluded.**

**Insured cat losses from 1995-2014 totaled $395.6B, an average of $19.8B per year or $1.65B per month**

Winter storm losses were much above average in 2014/15 are will push this share up

Tornado share of CAT losses is rising

Events Involving Tornadoes (2), $154.9

- 39.2%
- 40.7%
- 0.1%
- 0.1%
- 5.4%
- 6.2%
- 6.8%
Top 16 Most Costly Disasters in U.S. History—Katrina Still Ranks #1

(Insured Losses, 2014 Dollars, $ Billions)

Storm Sandy in 2012 was the last mega-CAT to hit the US

12 of the 16 Most Expensive Events in US History Have Occurred Since 2004

Sources: PCS; Insurance Information Institute inflation adjustments to 2014 dollars using the CPI.
Winter Storm Losses in the US 1980 – 2015 (Overall and Insured Losses)*

Winter storm losses have been increasing rapidly in recent years.

Overall losses (in 2015 values)*
Insured losses (in 2015 values)*

* Winter storms include also winter damages, blizzards and cold waves.

*Losses adjusted to inflation based on CPI.

Source: Property Claim Services, MR NatCatSERVICE.
Loss Events in the US, 1980 – 2014
Overall and Insured Losses

Overall losses totaled $25bn; Insured losses totaled $15.3bn

Uninsured loss component is large and could get larger. Vast majority of economic loss from SC floods is uninsured

Source: Property Claim Services, MR NatCatSERVICE.

*Losses adjusted to inflation based on CPI.
Convective Loss Events in the US Overall and insured losses, 1980 – 2014

The period from 2008-2014 has been the most expensive on record for insured losses from “Convective Events” (severe thunderstorms, tornado, hail, lightning and flash flood)

$ Billions

Overall losses (in 2014 values)*
Insured losses (in 2014 values)*

Analysis contains:
severe storm, tornado, hail, flash flood and lightning

*Losses adjusted to inflation based on CPI
Source: Geo Risks Research, NatCatSERVICE
Convective Loss Events in the US
Overall and insured losses, 1980 – 2015

Overall losses (in 2015 values)*

Insured losses (in 2015 values)*

The period from 2008-2015 has been the most expensive on record for insured losses from “Convective Events” (severe thunderstorms, tornado, hail, lightning and flash flood)

$ Billions

*Losses adjusted to inflation based on CPI
Source: Geo Risks Research, NatCatSERVICE

Analysis contains:
severe storm, tornado, hail, flash flood and lightning
Loss events in the U.S. 1980 – 2015
Insured losses of winter storms*

*Winter storms include also winter damages, blizzards and cold waves

**Losses adjusted to inflation based on country CPI

Source: Munich Re NatCatSERVICE, Property Claim Services, PCS

© 2016 Münchener Rückversicherungs-Gesellschaft, Geo Risks Research – As at January 2016
Loss events in the U.S. 1980 – 2015
Insured losses of convective events*

US$bn

*Convective events include severe storm, hail, tornado, flash flood, lightning

**Losses adjusted to inflation based on country CPI

***2015 figures without the Christmas events

Source: Munich Re NatCatSERVICE, Property Claim Services, PCS

© 2016 Münchener Rückversicherungs-Gesellschaft, Geo Risks Research – As at January 2016
The number of NFIP policies in force has plunged by 549,000 or 9.6% since 2009, even as coastal development surges and sea levels rise.
Catastrophe Bond Issuance and Outstanding: 1997-2015

<table>
<thead>
<tr>
<th>Year</th>
<th>New Issuance</th>
<th>Outstanding</th>
</tr>
</thead>
<tbody>
<tr>
<td>1997</td>
<td>948.2</td>
<td>874.2</td>
</tr>
<tr>
<td>1998</td>
<td>1,062.5</td>
<td>999.5</td>
</tr>
<tr>
<td>1999</td>
<td>1,142.0</td>
<td>1,166.9</td>
</tr>
<tr>
<td>2000</td>
<td>989.5</td>
<td>1,062.5</td>
</tr>
<tr>
<td>2001</td>
<td>1,142.8</td>
<td>1,142.8</td>
</tr>
<tr>
<td>2002</td>
<td>1,499.0</td>
<td>2,691.8</td>
</tr>
<tr>
<td>2003</td>
<td>4,289.0</td>
<td>4,770.0</td>
</tr>
<tr>
<td>2004</td>
<td>1,416.7</td>
<td>6,617.0</td>
</tr>
<tr>
<td>2005</td>
<td>7,677.0</td>
<td>12,508.2</td>
</tr>
<tr>
<td>2006</td>
<td>12,416.4</td>
<td>12,538.6</td>
</tr>
<tr>
<td>2007</td>
<td>4,614.7</td>
<td>12,508.2</td>
</tr>
<tr>
<td>2008</td>
<td>5,085.0</td>
<td>12,342.8</td>
</tr>
<tr>
<td>2009</td>
<td>3,009.9</td>
<td>12,342.8</td>
</tr>
<tr>
<td>2010</td>
<td>4,599.9</td>
<td>12,342.8</td>
</tr>
<tr>
<td>2011</td>
<td>4,359.1</td>
<td>12,342.8</td>
</tr>
<tr>
<td>2012</td>
<td>14,839.3</td>
<td>12,342.8</td>
</tr>
<tr>
<td>2013</td>
<td>18,576.9</td>
<td>12,342.8</td>
</tr>
<tr>
<td>2014</td>
<td>22,867.8</td>
<td>12,342.8</td>
</tr>
<tr>
<td>2015</td>
<td>25,966.5</td>
<td>14,508.2</td>
</tr>
</tbody>
</table>

Cat Bond Issuance Declined Slightly in 2015 from 2014’s Record Pace. Lower Yields on Bonds Explain Some of the Contraction.

Record traditional capacity, alternative capital and low CAT activity have pressured reinsurance prices; ROEs are own only very modestly

Source: Barclays PLC from Guy Carpenter; Insurance Information Institute.
Earthquakes Since 1980 and Recent Area Impacted by Induced Seismicity

USGS map displaying 21 areas where scientists have observed rapid changes in seismicity that have been associated with wastewater injection. The map also shows earthquakes—both natural and induced—recorded from 1980 to 2015 in the central and eastern U.S. with a magnitude greater than or equal to 2.5.

2016 Natural and Induced Earthquake Damage Forecast

Effective Use of Data, Infographics to Get Out a Key Message

Top 5 Most Common Causes of Homeowners Insurance Claims

- Exterior wind damage – 25 percent of all losses.
- Non-weather-related water damage (e.g., plumbing or appliance issues) – 19 percent.
- Hail – 15 percent.
- Weather-related water damage (e.g., rain, melting ice, snow) – 11 percent.
- Theft – 6 percent.

Sources: Travelers; Infographic accessed at: http://mms.businesswire.com/media/20160406005833/en/517883/5/Home_Dangers_Infographic_Final.jpg?download=1
A Few Factors Driving Adverse Private Passenger Auto Loss Trends

More People Driving, Lower Gas Prices, Higher Speed Limits...
More Miles Driven => More Collisions, 2006–2015:Q4

The more miles people drive, the more likely they are to get in an accident, helping drive claim frequency higher.

Sources: Federal Highway Administration (http://www.fhwa.dot.gov/policyinformation/travel_monitoring/tvt.cfm); Rolling Four-Qtr Avg. Frequency from Insurance Services Office; Insurance Institute for Highway Safety; Insurance Information Institute.

When people are out of work, they drive less. When they get jobs, they drive to work, helping drive claim frequency higher.

Sources: Seasonally Adjusted Employed from Bureau of Labor Statistics; Rolling Four-Qtr Avg. Frequency from Insurance Services Office; Insurance Information Institute.
Why Are People Driving More Miles? Cheap Gas?

Gas Prices Don’t Seem Correlated With Miles Driven.

Sources: Federal Highway Administration (http://www fhwa dot gov/policyinformation/travel_monitoring/tvt cfm ); Energy Information Administration; Insurance Institute for Highway Safety; Insurance Information Institute.
Why Are People Driving More Miles? Jobs?

People Drive To and From Work and Drive to Entertainment. Out of Work, They Curtail Their Movement.

Change in Auto Fatalities by State: Especially Severe in Georgia

2015 vs. 2014

-1% 7% 8% 11% 12% 16% 22% 0% 5% 10% 15% 20% 25%

GA (1,394)
SC (954)
KY (748)
NC (1,396)
USA (38,300)
VA (755)
TN (961)

GA’s auto fatality rate has increased at a pace nearly 3 times that of the US overall and far in excess of any other state in the region.

Fatalities in Southeast Rising Faster Than USA as a Whole

Comparing Gas Prices, Employment on Collision Frequency

Gas price vs. Collision Frequency

Number Employed vs. Collision Frequency

Sources: Seasonally Adjusted Employed from Bureau of Labor Statistics; Energy Information Administration; Rolling Four-Qtr Avg. Frequency from Insurance Services Office; Insurance Information Institute.
Return on Net Worth: Personal Auto, 2005-2014

Auto Insurance Profitability Has Been Falling for A Decade.

SOURCE: National Association of Insurance Commissioners.
Net Combined Ratio, 2005-2015

Loss Ratios Have Been Rising for A Decade. 2015 Return on Net Worth Is Likely Close to Zero or Negative.

Claim Trends in Private Passenger Auto Insurance

Rising Frequencies and Severities in Many Coverages
Will that Pattern Be Sustained?
Auto Severity & Frequency by Coverage: Trending Up in 2015

Annual Change, 2015 Over 2014

Frequency and Severity Were Up Across Most Coverage Types in 2015; A Trend Likely to Continue in 2016

Source: ISO/PCI Fast Track data; Insurance Information Institute
Collision Coverage: Severity & Frequency Trends Are Both Higher in 2015

Annual Change, 2005 through 2015

<table>
<thead>
<tr>
<th>Year</th>
<th>Severity Change</th>
<th>Frequency Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>3.9%</td>
<td>-1.8%</td>
</tr>
<tr>
<td>2006</td>
<td>3.1%</td>
<td>-3.6%</td>
</tr>
<tr>
<td>2007</td>
<td>0.1%</td>
<td>0.5%</td>
</tr>
<tr>
<td>2008</td>
<td>2.5%</td>
<td>-2.4% -2.3%</td>
</tr>
<tr>
<td>2009</td>
<td>-1.4%</td>
<td>-0.1%</td>
</tr>
<tr>
<td>2010</td>
<td>-0.5%</td>
<td>0.9% 1.3%</td>
</tr>
<tr>
<td>2011</td>
<td>2.8%</td>
<td>-1.8%</td>
</tr>
<tr>
<td>2012</td>
<td>4.1%</td>
<td>2.4%</td>
</tr>
<tr>
<td>2013</td>
<td>1.3%</td>
<td>4.4%</td>
</tr>
<tr>
<td>2014</td>
<td>1.3%</td>
<td>0.8%</td>
</tr>
<tr>
<td>2015</td>
<td>5.7%</td>
<td>0.8%</td>
</tr>
</tbody>
</table>

The Recession, High Fuel Prices Helped Temper Frequency and Severity, But this Trend Has Clearly Reversed, Consistent with Experience from Past Recoveries

Source: ISO/PCI Fast Track data; Insurance Information Institute

Loss Ratio

Collision Loss Ratios are Trending Steadily Upward

Source: ISO/PCI Fast Track data; Insurance Information Institute
Bodily Injury: Severity Trend Is Up, Frequency Decline Has Ended—Rising?

Annual Change, 2005 through 2015

Cost Pressures Will Increase if BI Frequency and Severity Trends Persist

Source: ISO/PCI Fast Track data; Insurance Information Institute
Property Damage Liability: Severity and Frequency Are Up

Annual Change, 2005 through 2015

Severity/Frequency Trends Have Been Volatile, But Rising Severity since 2011 Is a Concern

Source: ISO/PCI Fast Track data; Insurance Information Institute
No-Fault (PIP) Liability: Severity is Up, Frequency Relatively Flat*

Annual Change, 2005 through 2015

No-Fault Systems Are Less Problematic in Some States but Still of Concern in Some, Such as MI

*No-fault states included are: FL, HI, KS, KY, MA, MI, MN, NY, ND and UT.
Source: ISO/PCI Fast Track data; Insurance Information Institute
Comprehensive Coverage: Frequency and Severity Trends Are Volatile

Annual Change, 2005 through 2015

Severe weather is a principal cause of the spikes in both frequency and severity.

Weather Creates Volatility for Comprehensive Coverage

Source: ISO/PCI Fast Track data; Insurance Information Institute
Death Rates per 100,000,000 Vehicle miles, 1990-2015*

Vehicle death rates fell by nearly half between 1990 and 2010

*Projected rate for 2015 based on date through June 2015.
Auto Insurance: Claim Frequency Impacts of Energy Crisis of 1973/4

Oct. 17, 1973: Arab oil embargo begins

Frequency Impacts
Collision: -7.7%
PD: -9.5%
BI: -13.3%

March 17, 1974: Arab oil states announce end to embargo

Driving Stats
• Gas prices rose 35-40%
• Miles driven fell 6.7% in 1974

*Seasonally Adjusted, Quarterly Paid Fast Track data indexed to First Quarter 1973.
**ISO Paid Data, year-ended quarter indexed to First Quarter 1973.

Source: ISO, US DOT.
Auto Insurance: Claim Severity Impacts of Energy Crisis of 1973/4

Severity Impacts

Collision: -7.5%
PD: +15.9%
BI: N/A*

Driving Stats

- Gas prices rose 35-40%
- Miles driven fell 6.7% in 1974

Oct. 17, 1973: Arab oil embargo begins

March 17, 1974: Arab oil states announce end to embargo

Collision severity began to rebound almost immediately after the embargo ended; PD accelerated as inflation rose; No discernable trend change in BI.

Source: ISO.
Auto Insurance Claim Cost Drivers Continue to Grow Faster than CPI

Price Level Change: December 2015 vs. December 2014

Healthcare costs are a major cost driver and are expected to accelerate in the years ahead

# Defense Costs and Cost Containment Expenses as a Percent of Incurred Losses, 2011 – 2013*

*Latest available.

Source: SNL Financial; Insurance Information Institute.

<table>
<thead>
<tr>
<th>($000)</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Amount</td>
<td>As a percent</td>
<td>Amount</td>
</tr>
<tr>
<td>Products liability</td>
<td>$1,140,230</td>
<td>72.0%</td>
<td>$873,860</td>
</tr>
<tr>
<td>Medical malpractice</td>
<td>1,793,296</td>
<td>57.5</td>
<td>1,686,009</td>
</tr>
<tr>
<td>Commercial multiple peril (2)</td>
<td>1,896,935</td>
<td>37.6</td>
<td>2,022,739</td>
</tr>
<tr>
<td>Other liability</td>
<td>4,464,140</td>
<td>25.0</td>
<td>4,959,838</td>
</tr>
<tr>
<td>Workers compensation</td>
<td>3,087,836</td>
<td>12.6</td>
<td>3,071,093</td>
</tr>
<tr>
<td>Commercial auto liability</td>
<td>960,961</td>
<td>10.3</td>
<td>1,091,434</td>
</tr>
<tr>
<td>Private passenger auto liability</td>
<td>3,960,967</td>
<td>6.2</td>
<td>4,353,427</td>
</tr>
<tr>
<td>All liability lines</td>
<td>$17,304,365</td>
<td>13.8%</td>
<td>$18,058,400</td>
</tr>
</tbody>
</table>

(1) Net of reinsurance, excludes state funds.
(2) Liability portion only.

Defense and Cost Containment expenses in Pvt. Passenger Auto Liability have edged up slightly in recent years, from 6.2% of incurred losses to 6.8%
Products Liability and Medical Malpractice cases tend to have among the highest jury awards.

Personal Lines Growth Analysis

Growth Trajectories Differ Substantially by State and Over Time
While homeowners insurance has grown faster than auto for many years, auto is generally more profitable, though not recently.

PP Auto premiums written continue
to recover from a period of flat
growth attributable to the weak
economy impacting new vehicle
sales, car choice, and increased
price sensitivity among consumers

PPA NWP volume in 2014
was up $26.3B or 16.7%
since the 2009 trough; By
2017 the gain is expected to
be $46.8B or 29.7%

Sources: A.M. Best (1990-2014); Conning (2015-17F); Insurance Information Institute.
In contrast to positive PP Auto NPW growth, Commercial Auto premiums fell 21.3% between 2005 and 2011 due to soft market conditions in commercial lines and negative exposure trends, though growth resumed in 2012.
Direct Premiums Written: PP Auto

Percent Change by State, 2007-2014

Top 25 States

Growth Benchmarks: PPA
US: 16.4%

Sources: SNL Financial LC.; Insurance Information Institute.
Direct Premiums Written: PP Auto
Percent Change by State, 2007-2014

Bottom 25 States

Pvt. Passenger Auto premium growth was negative in Hawaii between 2007 and 2014

Sources: SNL Financial LC.; Insurance Information Institute.
Homeowners Insurance Net Written Premium, 2000–2016F

Homeowners insurance NWP continues to rise (up 150% 2000-2015F) despite very little unit growth during the real estate crash. Reasons include rate increases, especially in coastal zones, ITV endorsements (e.g., “inflation guards”), compulsory for mortgaged properties and resumption of home building activity.

The Homeowners line will generate about $4B in new premiums annually through 2016.

Sources: A.M. Best; Insurance Information Institute.
Personal Lines
Growth Drivers

Rate and Exposure are Both Presently Important Growth Drivers
Monthly Change in Auto Insurance Prices, 1991–2015*

Cyclical peaks in PP Auto tend to occur roughly every 10 years (early 1990s, early 2000s and likely the early 2010s)

“Hard” markets tend to occur during recessionary periods

Pricing peak occurred in late 2010 at 5.3%, falling to 2.8% by Mar. 2012

Dec. 2015 reading of 5.5% is up from 4.7% a year earlier

*Percentage change from same month in prior year; through Dec. 2015; seasonally adjusted

Note: Recessions indicated by gray shaded columns.

Sources: US Bureau of Labor Statistics; National Bureau of Economic Research (recession dates); Insurance Information Institutes.
The **Pure Premium Spread** is the difference between price increases and loss cost inflation adjusted for frequency trends.

Pure Premium Spread in 2015 Q1 was 0.0% meaning that rate gains were exactly offset by loss cost inflation.
Average Expenditures* on Auto Insurance, 1994-2015E

Across the U.S., auto insurance expenditures fell by 0.8% in 2008 and 0.5% in 2009 but rose 0.5% in 2010, 0.8% in 2011, 2.3% in 2012 and 3.3% in 2013; I.I.I. estimate is for +3.4% in 2014 and 2015.

* The NAIC data are per-vehicle (actually, per insured car-year)
M&A UPDATE: A PATH TO GROWTH?

Are Capital Accumulation, Drive for Growth and Scale Stimulating M&A Activity?

Not Currently Focused on Personal Lines
M&A activity in 2015 will likely reach its highest level since 1998.

M&A activity in the P/C sector was up sharply in 2015.

Newsflash: WR Berkley to enter high net worth personal lines market!

(1) Includes transactions where a U.S. company was the acquirer and/or the target.

Personal Lines: Economic and Demographic Considerations

Auto, Home Are Sensitive to Underlying Economic Conditions
Insurers Are Continue to See Meaningful Exposure Growth in the Wake of the “Great Recession” Associated with Home Construction: Construction Risk Exposure, Surety, Commercial Auto; Potent Driver of Workers Comp Exposure.

New home starts plunged 72% from 2005-2009; A net annual decline of 1.49 million units, lowest since records began in 1959.

Job growth, low inventories of existing homes, still-low mortgage rates and demographics should continue to stimulate new home construction for several more years.

Source: U.S. Department of Commerce; Blue Chip Economic Indicators (5/16 for 2016-17; 3/16 for 2018-21F; Insurance Information Institute.
Rental-Occupied Housing Units as % of Total Occupied Units, Quarterly, 1990:Q1-2015*

Since the Great Recession ended in June 2009, renters occupied 5.7 million more units (+15.6%).

I.I.I. Poll: Renter’s Insurance

Q. Do you have renters insurance? ¹

Americans are increasingly choosing to rent, but are slow to understand the need to insure, exacerbating the underinsurance gap.

The Percentage of Renters Who Have Renters Insurance Has Been Rising Since 2011.

¹Asked of those who rent their home.

Source: Insurance Information Institute Annual Pulse Survey.
Auto/Light Truck Sales, 1999-2021F

New auto/light truck sales fell to the lowest level since the late 1960s. Forecast for 2014-15 is still below 1999-2007 average of 17 million units, but a robust recovery is well underway.

Yearly car/light truck sales will likely continue at current levels, in part replacing cars that were held onto in 2008-12. PP Auto premium might grow by 3.5% - 5%.

Job growth and improved credit market conditions will boost auto sales in 2015 and beyond.

Sales have returned to pre-crisis levels.

Truck, SUV purchases by contractors are especially strong.

Source: U.S. Department of Commerce; Blue Chip Economic Indicators (5/16 for 2016-17; 3/16 for 2018-21F; Insurance Information Institute.)
Vehicle registrations are growing once again and now finally exceed pre-crisis peak.

Vehicle registrations are expected to increase at an annual rate of about 1.5% per year in 2015 and 2016.

Sources: Bureau of Transportation Statistics; Barclays Capital estimates, August 2015.
Licensed Drivers, Vehicle Registrations and Resident Population: All UP!

The recession temporarily interrupted growth, but the number of drivers and registered is rising!

America is Driving More Again (Finally!): Total Miles Driven*, 1990–2015*

Billions

*Moving 12-month total. The 2015 data are through November 2015, the latest available. Note: Recessions indicated by gray shaded columns.

Sources: Federal Highway Administration (http://www.fhwa.dot.gov/policyinformation/travel_monitoring/tvt.cfm); National Bureau of Economic Research (recession dates); Insurance Information Institute.
### Change in Proportion of Persons with Driver Licenses in the US, by Age, 1983-2014

<table>
<thead>
<tr>
<th>Age</th>
<th>Change from 1983 to 2014</th>
<th>Change from 2008 to 2014</th>
<th>Change from 2011 to 2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>-47.0%</td>
<td>-21.2%</td>
<td>-10.9%</td>
</tr>
<tr>
<td>17</td>
<td>-34.8%</td>
<td>-10.2%</td>
<td>-0.2%</td>
</tr>
<tr>
<td>18</td>
<td>-25.2%</td>
<td>-8.1%</td>
<td>-0.3%</td>
</tr>
<tr>
<td>19</td>
<td>-21.0%</td>
<td>-8.6%</td>
<td>-0.4%</td>
</tr>
<tr>
<td>20-24</td>
<td>-16.4%</td>
<td>-6.5%</td>
<td>-3.8%</td>
</tr>
<tr>
<td>25-29</td>
<td>-11.0%</td>
<td>-1.4%</td>
<td>-2.7%</td>
</tr>
<tr>
<td>30-34</td>
<td>-10.3%</td>
<td>-4.4%</td>
<td>-2.8%</td>
</tr>
<tr>
<td>35-39</td>
<td>-7.4%</td>
<td>-4.1%</td>
<td>-2.5%</td>
</tr>
<tr>
<td>40-44</td>
<td>-3.4%</td>
<td>-3.0%</td>
<td>-2.7%</td>
</tr>
<tr>
<td>45-49</td>
<td>-2.2%</td>
<td>-2.7%</td>
<td>-1.5%</td>
</tr>
<tr>
<td>50-54</td>
<td>-0.2%</td>
<td>-3.2%</td>
<td>-1.1%</td>
</tr>
<tr>
<td>55-59</td>
<td>+4.1%</td>
<td>-3.3%</td>
<td>-1.5%</td>
</tr>
<tr>
<td>60-64</td>
<td>+9.9%</td>
<td>-4.0%</td>
<td>-0.6%</td>
</tr>
<tr>
<td>65-69</td>
<td>+15.4%</td>
<td>-2.8%</td>
<td>-1.7%</td>
</tr>
<tr>
<td>≥70</td>
<td>+43.6%</td>
<td>+0.8%</td>
<td>-0.3%</td>
</tr>
</tbody>
</table>

**Smaller proportions of younger drivers have licenses but not because they’re all taking Uber.**

**The AARP crowd can’t be pried away from the cars.**

Girl Power: Females with a Driver’s License as a % of All Licensed Drivers

Women now account for the majority of licensed drivers.

Frequency/Severity Impacts:
Woman are more likely to drive less, buy smaller cars, buy safer cars and less likely to be involved in accidents.

Boys with No Toys
Women now account for the majority of licensed drivers.

Auto Loans and Other Non-Housing Debt, 2004 – 2015*

Banks are becoming increasingly aggressive in marketing auto loans

*As of Q1 2015.
Source: Federal Reserve Bank of NY Consumer Credit Panel/Equifax; I.I.I.

Auto loan debt outstanding reached $1T for the first time ever in Q1 2015
INDUSTRY DISRUPTORS

Technology, Society and the Economy Are All Changing at a Rapid Pace

Thoughts on the Future
Media is Obsessed with Driverless Vehicles: Often Predicting the Demise of Auto Insurance

By 2035, it is estimated that 25% of new vehicle sales could be fully autonomous models.

Questions:
- Are auto insurers monitoring these trends?
- How are they reacting?
- Will Google take over the industry?
- Will the number of auto insurers shrink?
- How will liability shift?

Source: Boston Consulting Group.
On-Demand/Sharing/Peer-to-Peer Economy Impacts Many Lines of Insurance

- The “On-Demand” Economy is or will impact many segments of the economy important to P/C insurers
  - Auto (personal and commercial)
  - Homeowners/Renters
  - Many Liability Coverages
  - Professional Liability
  - *Workers Comp*

- Many unanswered insurance questions

- Insurance solutions are increasingly available to fill the many insurance gaps that arise
The concern was that TNCs were seeking to offload risk on to personal auto insurers. An increasing number of personal auto insurers have developed solutions to ensure that coverage gaps are minimized.

---

### TNC Ridesharing Arrangements: Insurance Applicability

<table>
<thead>
<tr>
<th>Phase</th>
<th>TNC Coverage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Driver logged into TNC App but not &quot;matched&quot; with a passenger</td>
<td>Contingent liability coverage IF personal auto coverage declined/not available ($50/100/25)*</td>
</tr>
</tbody>
</table>
| 2. A "match" is made but passenger is not in the driver's car | Primary liability, UM/UIM coverage at a higher limit ($1M)*  
Contingent comp/collision coverage |
| 3. A passenger is in the driver's car | Same as Phase 2 |

*From publically available sources as of June 2, 2015.  
Source: ISO/Verisk.*
Ridesharing Regulation/Legislation and Status of ISO Filings as of 9/30/15

Status of ISO Filings

Source: ISO.
Homesharing Arrangements: Potential Host Exposure Concerns (Receives Rental Income)

- **Property**
  - Loss to host’s property/furnishings
  - Loss of use

- **Liability**
  - Damage to property of traveler, traveler’s guests
  - Damage to landlord’s property/furnishings
  - Bodily injury to traveler, traveler’s guests

- **Comment**
  - A landlord may act as a host (vacant unit)
  - A Homeowners Policy may be issued to the owner-occupant(s) of a 1, 2, 3 or 4 family dwelling

Source: ISO/Verisk.
Homesharing Arrangements: Potential Traveler Exposure Concerns

• **Property**
  – Loss to traveler’s property

• **Liability**
  – Damage to property/furnishings of host and landlord
  – Bodily injury to traveler’s guests, other tenants and visitors to building
  – Personal injury due to poor reviews

• **Comment**
  – Similar exposures currently exist for travelers at hotels, B & B’s, guest houses
Homesharing: ISO’s Proposed Changes*

1. Policyholder Notice
   - Guidance for policyholder to contact insurer

2. Exclusion
   - Explicit exclusion for loss/damage/injury arising out of homesharing
   - Applicable to host, landlord
   - To the extent possible, preserve existing coverage for rentals that do not originate from homesharing, such as that providing for roomers, boarders

3. Coverage option
   - Property and liability coverage for loss/damage/injury arising out of homesharing
   - Applicable to host, landlord

*As of Oct. 6, 2015.
Source: ISO/Verisk.
Send in the Drones: Potential Rapid Adoption in Industry; Media Loves It

- Drones or Unmanned Aerial Vehicle (UAV) technology is seeing rapid adoption rate in many industries, including insurance.
- ~700,000 drones in US by year-end.
- FAA granting Section 333 exemptions for commercial use and testing of UAS.
- FAA will require most drones to be registered by year-end 2015.
- At least 5 insurers have received permission to test.
- Wide variety of applications: claims, pre-event property inspections...
- Insurers partnering with construction industry to guide R&D and regulation of UAV use via Property Drone Consortium: www.propertydrone.org
The total number of data breaches (+27.5%) hit a record high of 783 in 2014, exposing 85.6 million records. Through June 30, this year has seen 117.6 million records exposed in 400 breaches.*

The Three Basic Elements of Cyber Coverage: Prevention, Transfer, Response

Cyber risk management today involves three essential components, each designed to reduce, mitigate or avoid loss. An increasing number of cyber risk products offered by insurers today provide all three.

Source: Insurance Information Institute research.
Technology Promises Safer Cars and Highways, *BUT* Some Analysts, Media and Many in Silicon Valley Are Predicting Doom for Auto Insurers
The Internet of Things and the Insurance Industry

- The “Internet of Things” will create trillions in economic value throughout the global economy by 2025.

- What opportunities, challenges will this create for insurers?

- What are the impact on the insurance industry “value chain”?

Sources: McKinsey Global Institute, *The Internet of Things: Mapping the Value Beyond the Hype*, June 2015; Insurance Information Institute.
The Internet of Things and the Insurance Industry Value Chain

The Insurance Industry Value Chain Is Changing for Many Reasons

The Internet of Things and the Insurance Industry Value Chain

Possibly including: GM, Apple, zipcar

Possibly including: Quindell, Google, Verisk Analytics

Possibly including: Home, Mercedes

Who owns the data? Where does it flow? Who does the analytics? Who is the capital provider?

A NEST Case Study

Nest: A Leader in the “Internet of Things”

Collision Course or Cooperation with the Insurance Industry?
Telematics for Your Home: The Internet of Things

- The home is the next frontier for telematics
- Rapidly becoming a crowded space
- How and with whom will insurers partner?
- Can control increasing array of household systems remotely
  - Heat, A/C
  - Fire, CO detection
  - Security Systems
  - Cameras/Monitors
  - Appliances
  - Lighting

- Technology is adaptive
  - *Uses sensors and algorithms to learn about you*
Partnerships with Insurers: Selling Safety and Savings Simultaneously

Stay safe.
Save money.

Your insurance company knows Nest Protect helps keep you safe. They know it saves lives.

So we’ve partnered with leading insurance companies to help you get a Nest Protect at no cost. Your insurance provider could also lower your premiums up to 5% because Nest Protect is special - it can connect to Wi-Fi and tell them it’s working.

It’s their business to know what keeps families safe. And they believe in Nest Protect.

Find out when a Nest insurance partner is coming to your area.

Nest is actively seeking to partner with insurers. As of Jan. 10, 2016, Nest listed 2 insurance partners offering discounts in a number of states.

Source: https://nest.com/insurance-partners/ accessed 1/10/16; Insurance Information Institute research.
Recent Attacks on the Insurance Industry

Why Are Critics Suddenly More Aggressive?
What’s Driving Attacks on the Insurance Industry?

- Recent Surge in Attacks is Associated with Income Inequality Debate in the United States
  - Attacks not confined to auto insurance (e.g., Workers Comp, Health)
  - Not confined to insurance (banks, lending in general, student loans)

- Politics, Economics, Regulation & Demographics Are Principal Drivers
  - CFA/CR and others (ProPublica) emboldened in current environment
  - Dodd-Frank Act stuffed with income inequality mandates and studies
  - FIO now studying auto insurance affordability; Wants to create index.
  - Definition of “fairness” is shifting

- CFA Has Been Able to Attack Certain Rating Factors Based on New Perception of Fairness (which is independent of actual risk)
  - Education          Occupation       Marital Status       Gender
  - Age               Credit Profile      Location            “Price Optimization”

- All of These Are Vulnerable to Attack in the Current Environment
- Infinite Number of Quotes Online → CFA Uses to Highlight Perceived Inequities
The Truth about Auto Insurance?
Driving records alone offer an incomplete picture

Rating factors used by auto insurers to price policies have come under attack in recent months. Consumer Reports (CR) and the Consumer Federation of America (CFA) have made headlines by purporting to demonstrate U.S. auto insurers use certain rating factors unfairly, including a driver’s credit-based insurance score, gender and marital status. They have also criticized the practice of “price optimization,” a term defined by the Casualty Actuarial Society (CAS) as “the supplementation of traditional actuarial loss cost models to include quantitative customer demand models for use in determining customer prices.”

The CR and CFA analyses were misleading and overlooked the ways in which competition in auto insurance markets is enhanced and consumers benefit when a wide variety of rating factors beyond a person’s driving record are used to determine risk.

Key factors include:

- **Credit**
  - Regulators in 47 U.S. states allow the use of credit-based insurance scores.
  - “Credit scores are effective predictors of risk under automobile policies.”
    - 2007 Federal Trade Commission report
  - 76 percent of consumers emit good or better credit management behaviors.

- **Gender**
  - Women drivers tend to get into fewer and less serious accidents than men.
  - Men were behind the wheel in nearly three of every four fatal crashes nationwide (2003-2005).
    - U.S. Department of Transportation’s National Highway Traffic Administration

- **Marital Status**
  - Married drivers tend to get into fewer and less serious accidents than unmarried drivers, based on the claims experience of U.S. auto insurers.
    - Some insurers have compiled data over a period of decades.

**Price Optimization**
- Price Optimization allows insurers to rely on “more objective, quantitative information about the judgmental aspects of the rate-setting process instead of evidence, primarily on anecdotal evidence.”
- Consumers benefit because, “Price optimization may improve rate stability and lower an insurer’s long-term cost for providing coverage and limit policyholder discounts if consumers realize more stability through price optimization, policyholder discounts for long-term may increase over time.”
  - National Association of Insurance Commissioners “Casualty Actuarial and Statistical Task Force report.”

Resources

- Consumer education articles
  - What Determines the Price of My Auto Insurance Policy?
    - www.ii.org/article/how-does-it-work-price-my-auto-insurance-policy
  - How Can I Save Money on Auto Insurance?
    - www.ii.org/article/how-can-i-save-money-auto-insurance

- Presentations and research
  - Price Optimization in Auto Insurance Markets: Actuarial, Economic, and Regulatory Considerations
    - www.ii.org/presentation/price-optimization-in-auto-insurance-markets-actuarial-economic-and-regulatory-considerations-
  - Facts & Statistics: Auto Insurance
    - www.ii.org/fact-statistics/auto-insurance
  - Issues Update: Credit Scoring and Insurance
    - www.ii.org/issue-update/credit-scoring

- Yearbook
  - This is on Insurance—Auto Coverage: You’re in the Driver’s Seat
    - www.ii.org/yearbook-on-insurance-auto-coverage-youre-in-the-drivers-seat

- Subject matter experts
  - Dr. Robert Hartwig, president & economist: robh@ii.org
  - Dr. John Lynch, FCAS MAAA, chief actuary and director of Information Services: jlynch@ii.org

- Media contact
  - Michael Barry, vice president, Media Relations: mbarry@ii.org

For more information about insurance: www.ii.org
Price Optimization Was the Sharpest Area of Attack the Industry Faced in 2015
Price Optimization: What Is It?

1.4 Cents Per Ounce ($5.49 for 24 Bottles)

5.9 Cents Per Ounce ($23.76 for 24 Bottles)

U.S. Insurers Don’t Do This!!!

320% Price Difference! Does It Cost $18.25 to Unpack the Bottles and Keep Them Cold?
Who Knows?

- No One Has Successfully Defined It
- At Least Seven Definitions From States, Vendors, NAIC, Others
- Some Have Talked About
  - Price Elasticity of Demand
  - ‘Loyalty Penalty’
- Use of ‘Sophisticated Tools and Models to Quantify Other Business Considerations’ (profitability/retention) (NAIC/I.I.I.)
What Is the Objection? Detractors Say . . . .

- ‘Systematic Component to Rate Setting Unrelated to Expected Losses or Expenses’ (It’s a Rating Variable, and It’s Not Based on Likelihood of Loss, So It’s Illegal.)

- ‘Price Gouging’
  - Poor Get Overcharged
  - Most Loyal Customers Get Mistreated
FOUR FACTS ABOUT PRICE OPTIMIZATION
1. Insurers Have Always ‘Optimized’ – With Regulator Knowledge & Approval

<table>
<thead>
<tr>
<th>Company Name</th>
<th>Overall % Indicated Change</th>
<th>Overall % Rate Impact</th>
<th>Written Premium for this Program</th>
<th>Number of Policy Holders Affected</th>
<th>Written Premium for this Program</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5.700%</td>
<td>2.600%</td>
<td>$169,000</td>
<td>632</td>
<td>$6,463,000</td>
</tr>
<tr>
<td></td>
<td>17.400%</td>
<td>2.800%</td>
<td>$898,000</td>
<td>3,649</td>
<td>$34,492,000</td>
</tr>
<tr>
<td></td>
<td>-3.800%</td>
<td>3.400%</td>
<td>$1,859,000</td>
<td>15,942</td>
<td>$54,331,000</td>
</tr>
<tr>
<td></td>
<td>-6.300%</td>
<td>3.200%</td>
<td>$170,000</td>
<td>1,071</td>
<td>$5,284,000</td>
</tr>
<tr>
<td></td>
<td>7.500%</td>
<td>2.700%</td>
<td>$955,000</td>
<td>5,793</td>
<td>$35,290,000</td>
</tr>
</tbody>
</table>

**Overall Rate Information for Multiple Company Filings**
- Overall Percentage Rate Indicated For This Filing
- Overall Percentage Rate Impact For This Filing
- Effect of Rate Filing-Written Premium Change For This Program
- Effect of Rate Filing - Number of Policyholders Affected

Sources: System for Electronic Rate and Form Filing (SERFF) via SNL Financial; Insurance Information Institute.

**Other Examples:** Rate Capping, Teen Drivers
2. Optimization Is Not Price Gouging

- Traditional Practice
  - Used ‘Seat-of-the-Pants’ Judgment to Discount Off Indication

- What’s New
  - Software Informs the Judgment

- Never Exceeds Actuarial Indication

An Example

- Actuarial Indication: $106
- Indicated: +6%, $104
- Selected: +3%, $102
- Today's Rate: $100

Today's Rate: $98, $100, $102, $104, $106
3. Optimization Doesn’t Raise Rates; It Distributes the Rate Change

- As Practiced in U.S.
  - Remains True to Cost-Based Price
  - Applied to Classes, Not Individuals

- Rates Don’t Exceed Actuarial Indication

Example (cont’d): There Are Many Reasonable Ways to Achieve Reasonable Rates.
NAIC Task Force Concluded (November)

Force believes the following practices, at a minimum, are inconsistent with statutory requirements that “rates shall not be ... unfairly discriminatory:”

a. Price elasticity of demand.
b. Propensity to shop for insurance.
c. Retention adjustment at an individual level.
d. A policyholder’s propensity to ask questions or file complaints.

Restrictions/bans in 16+ States, D.C.

Illinois Declined to Issue Regulation

‘Illinois has a highly competitive auto and homeowners’ insurance market ... I would be delighted to host any members of ... consumer organizations to visit with me, in person, to share the data they cite as it is inconsistent with what I have reviewed.’

- Acting Insurance Director Anne Melissa Dowling
  January 2016
4. Low Income Drivers Are Just as Likely to Shop As Anyone Else


Low- to Moderate-Income Respondents Were More Likely to Say They Compare Prices.

Source: Insurance Information Institute Annual Pulse Survey.
What Has I.I.I. Done?

- Media
- Industry
- Policymakers

The Message:

- ‘the optimal way … is not through prohibitions but through observation, learning and studying the impacts on insurance markets and consumers and only then making recommendations as necessary.’
  - Robert Hartwig,
  NCOIL, July 17, 2015
Thank you for your time and your attention!

Twitter: twitter.com/bob_Hartwig