Welcome to the Casualty Insights Conference!
Welcoming Remarks

David Bradford
Co-Founder & Chief Strategy Officer
Advisen
M&C
O,L&T
Leading the way to smarter and more efficient risk and insurance communities, Advisen delivers:
The right information into
The right hands at
The right time
To power performance
Thank you to our Advisory Board

Joseph Cellura, Allied World
Tim DeSett, Lockton Companies
Stephen Kempsey, Marsh
Chris Kopser, AIG
Debbie Michel, Liberty Mutual Insurance
Joe Peiser, Willis Towers Watson [2016 Conference Co-Chair]
Debbie Weiser, Travelers [2016 Conference Co-Chair]
Brian Winters, Zurich North America
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APRIL 27, 2016
NEW YORK CITY
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Co-Chair Opening Remarks

Joe Peiser
Executive Vice President
Head of Casualty Broking
Willis Towers Watson

Debbie Weiser
President of Excess Casualty
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Keynote Address

Raymond W. Kelly
Vice Chairman
K2 Intelligence
Advisen Excess Casualty Loss Data
Advisen Excess Casualty Loss Data

Jim Blinn
EVP & Global Product Manager
Advisen
The Risk Manager’s Perspective
The Risk Manager’s Perspective

Stephen Kempsey
Managing Director
US Casualty Practice Leader
Marsh
(Moderator)
The Risk Manager’s Perspective

- Stephen Kempsey, Managing Director, US Casualty Practice Leader, Marsh (Moderator)
- Ray Abromitis, Director of Risk Insurance, BlueScope Steel North America Corporation
- Benjamin Gibbons, Insurance Risk Manager, SAP
- Ash Kilada, Senior Director, Treasury Risk Management, Pepsico Inc.
- Judy McInerny, Director, Risk Management, Corning Incorporated
The Risk Manager’s Perspective

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Marsh

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BlueScope Steel North America Corporation

Benjamin Gibbons
SAP

Ash Kilada
Pepsico Inc.

Judy McInerny
Corning Incorporated
Coming up next...

Track 1 (ACT I & II):
“Predictive Analytics and Casualty Modeling”

Track 2 (ACT III & IV):
“Autonomous Vehicles”
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Liberty Mutual  MARSH  ZURICH  ALLIED WORLD  IRONSHORE
PREMONITION™  QBE  THE HARTFORD  ARIUM RISK ARCHITECTURE  ORIGAMI RISK
Track 1: Insurance Issues
Predictive Analytics and Casualty Modeling
Predictive Analytics and Casualty Modeling

Mark Moitoso
Senior Vice President
Analytics Practice Leader
Lockton Companies
(Moderator)
Predictive Analytics and Casualty Modeling

- **Mark Moitoso**, Senior Vice President, Analytics Practice Leader, Lockton Companies (Moderator)
- **Vinny Armentano**, Senior Vice President, Business Insurance Claim, Travelers
- **Mark Brissman**, National Practice Leader, Predictive Analytics, Aon Risk Solutions
- **Jinsook Han**, SVP, Global Head of Business Solutions and Architecture, AIG
- **Toby Unwin**, Chief Innovation Officer, Premonition
Predictive Analytics and Casualty Modeling

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Premonition
TPA’s Changing Roles
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Debbie Rodgers
Sr. Vice President
Global Risk Management
Aramark
(Moderator)
TPA’s Changing Roles

- Debbie Rodgers, Sr. Vice President, Global Risk Management, Aramark (Moderator)
- Matt Merna, President, Chubb Global Casualty
- Dave North, President and CEO, Sedgwick
TPA’s Changing Roles

Debbie Rodgers
Aramark

Matt Merna
Chubb Global Casualty

Dave North
Sedgwick
Conference Luncheon

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“The Underwriter’s Viewpoint”

Track 2 (ACT III & IV):
“Product Recall: How Social Media, Activist Regulators and Complex Supply Chains Have Changed the Risk Landscape”
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Track 1: Insurance Issues
Thank you to our Sponsors!

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Liberty Mutual Insurance

Marsh

Zurich

Allied World

Ironshore

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Premonition

QBE

The Hartford

Arium

Origami Risk
The Underwriter’s Viewpoint
The Underwriter’s Viewpoint

Debbie Weiser
President of Excess Casualty
Travelers
(Moderator)
The Underwriter’s Viewpoint

- Debbie Weiser, President of Excess Casualty, Travelers (Moderator)
- Connie Germano, SVP, Head of Specialty Casualty, Everest National Insurance Company
- Michael Hudzik, SVP, Head of Casualty Treaty Underwriting - Global Clients, Swiss Re
- Patrick Kenahan, SVP, General Casualty Manager - Bermuda, Allied World
- Don Pickens, Chief Underwriting Officer, Global Corporate, North America, Zurich
The Underwriter’s Viewpoint

Debbie Weiser
Travelers

Connie Germano
Everest National Insurance Company

Michael Hudzik
Swiss Re

Patrick Kenahan
Allied World

Don Pickens
Zurich
How is Big Data Changing the Broking Dynamic?
How is Big Data Changing the Broking Dynamic?

Debbie Weiser
President of Excess Casualty Travelers
(Moderator)
How is Big Data Changing the Broking Dynamic?

- Debbie Weiser, President of Excess Casualty, Travelers (Moderator)
- Erica Dougherty, Senior Vice President, ZOOM Sales Leader, Beecher Carlson
- Ben Fidlow, Global Head of Core Analytics, New York, Willis Towers Watson
- Kelly O’Shea, Director, Risk Management, Xylem Inc.
How is Big Data Changing the Broking Dynamic?

Debbie Weiser
Travelers

Erica Dougherty
Beecher Carlson

Ben Fidlow
Willis Towers Watson

Kelly O’Shea
Xylem Inc.
Track 2: The Risk Landscape
Autonomous Vehicles
Autonomous Vehicles

William Burrows
Product Development Lead
Incubator - New Strategic Markets
Munich Reinsurance America, Inc.
Autonomous Vehicles Risk Landscape

Advisen Casualty Insights Conference
March 31, 2016

Bill Burrows, Product Development Lead
New Strategic Markets, Munich Reinsurance America, Inc.
Agenda

1. What are autonomous vehicles (AVs)?
2. Significant safety and economic benefits of AVs
3. Insurance implications
4. Liabilities expected to shift
5. Timing is uncertain
6. Key factors temper progress
7. Questions
What are autonomous vehicles?
## NHTSA - Levels of automation

<table>
<thead>
<tr>
<th>Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Level 0</strong></td>
<td>The human driver is in complete control of all functions of the car</td>
</tr>
<tr>
<td><strong>Level 1</strong></td>
<td>One or more functions is automated, but under human control. Examples: electronic stability control or pre-charged brakes</td>
</tr>
<tr>
<td><strong>Level 2</strong></td>
<td>More than one function is automated at the time, but the driver remains attentive. Example: adaptive cruise control in combination with lane centering</td>
</tr>
<tr>
<td><strong>Level 3</strong></td>
<td>Driving functions are sufficiently automated under certain traffic or environmental conditions; the driver can safely engage other activities but expected to be available for occasional control.</td>
</tr>
<tr>
<td><strong>Level 4</strong></td>
<td>The vehicle is self-driving for entire trip; no human control required</td>
</tr>
</tbody>
</table>
Sensors, cameras, radar and Light Detection and Ranging (LIDAR) provide data about vehicle’s position and surroundings to a computer that controls the car.

LIDAR, like radar, fires bursts of energy at a target and measures the return time to calculate the distance.

LIDAR generates high-resolution, three-dimensional data.
Human vision vs. machine vision

**Field of view:** 100 degrees  
**Distance:** 30 meters ahead

**Field of view:** 360 degrees  
**Distance:** 300 meters ahead
## Status of AV technology

### Number of unique inventions

<table>
<thead>
<tr>
<th>Autonomous Driving</th>
<th>Driver Assistance</th>
<th>Telematics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toyota</td>
<td>Bosch</td>
<td>GM</td>
</tr>
<tr>
<td>1850</td>
<td>805</td>
<td>320</td>
</tr>
<tr>
<td>Denso</td>
<td>Toyota</td>
<td>Hyundai</td>
</tr>
<tr>
<td>750</td>
<td>580</td>
<td>170</td>
</tr>
<tr>
<td>Bosch</td>
<td>Hyundai</td>
<td>Marvell</td>
</tr>
<tr>
<td>575</td>
<td>560</td>
<td>115</td>
</tr>
<tr>
<td>Nissan</td>
<td>Daimler</td>
<td>LG</td>
</tr>
<tr>
<td>550</td>
<td>410</td>
<td>70</td>
</tr>
<tr>
<td>Honda</td>
<td>Continental</td>
<td>Denso</td>
</tr>
<tr>
<td>505</td>
<td>300</td>
<td>40</td>
</tr>
</tbody>
</table>

Google ranked 19th for AV patents

New partnerships

Speculation regarding a joint venture – not announced as of 2/12/2016

Asset purchase – 1/16

Capital investment ($500m) – 1/16

Creates autonomous and technology vehicle development team – 1/16

GM: Begins car sharing program called Maven

Deploy GM AVs via Lyft

“If no human occupant of the vehicle can actually drive the vehicle, it is more reasonable to identify the ‘driver’ as whatever (as opposed to whoever) is doing the driving,” Paul Hemmersbaugh, NHTSA’s chief counsel, said in the letter.

In Google’s case, its self-driving system “is actually driving the vehicle,” he wrote.
Has logged over 1 million miles of autonomous driving

Completes a coast to coast trip 99% of the trip was done in autonomous mode

Source: CNNMoney, Driverless Car Finishes 3,400 Mile Cross-Country Trip, 4/3/2015
Image source: Delphi
Significant safety and economic benefits
Current automobile accident statistics

In 2015 in the US*

- 38,300 fatalities
- 4.4 million injuries
- $412** billion accidents

*provisional estimate increase of 8% year over year, largest increase in 50 years
**cost of motor-vehicle deaths, injuries and property damage

Productivity and efficiency

- Accident related costs
- Productivity costs
- Fuel consumption
- Traffic congestion
- Environment

Auto ownership

- Today your car is an unused asset 95% of the day.
- Will we own fewer cars if they are available on-demand?
- Will you hire-out your car?
- Or send it on errands when it’s not in use?

Source: Forbes, Self-Driving Cars Are Coming, 10/13/2014
Livery options

- Google and Uber compete to develop driverless taxis.
- Eliminating the “driver” significantly reduces overhead costs.
- Consumers can expect a driverless Uber fleet by 2030.

Source: Mobility Lab, Uber’s Plan for Self-Driving Cars Bigger Than It’s Taxi Disruption, 8/18/2015
Transportation industry

Fully autonomous technology in trucks can reduce fuel usage.
- Platooning

Dangerous environments

In dangerous environments such as mining, autonomous vehicles keep people out of harm’s way.

Image Credit: Caterpillar Inc
Large-scale adoption is a game-changer

The Driverless Car, Officially, Is a Risk

New industries will emerge, others will decline.
Insurance industry impact

“‘Driverless cars’ will ultimately change the face of auto insurance as we know it.”

*Dowling & Partners/“The Path to Driverless Cars” 2013*

“Ultimately, these advances are likely to actually eviscerate the personal auto insurance industry.”

*Meyer Shields, Managing Director/Analyst/Keefe Bruyette & Woods, 2015*

“Progressive has a significant concentration of its book of business with younger drivers who are likely the earliest adopters of disruptive technological change and Progressive may find its way to dominating this new kind of auto insurance world, but it also may find its products completely unnecessary in 2030.”

*Joshua Shanker, Deutsche Bank Analyst, 2015*
“Self-driving cars and ride-sharing programs will completely disrupt the car-insurance industry.”

- "Accident frequency will decline to where the difference among driving behaviors becomes negligible and it is difficult to charge a meaningful premium for insurance."
- "Insurance will take the form of commercial product liability instead of personal driver liability as we let the robots do the driving."
- "Vehicle utilization will rise and cars on the road will decline as one car can serve the driving needs of multiple travelers per day, which, in-turn, means fewer cars."

Business Insider

“This could be the beginning of the end for the car-insurance business”

July 21, 2015
Liabilities expected to shift
Potential shifts in liabilities and premiums

- Auto liability: Likely to shrink
- Cyber risk tech E&O/IoT: Likely to increase
- Products liability: Likely to increase
- Auto physical damage: Likely no material change
- Equipment breakdown/warranty: Likely to increase
- Product recall: Likely to increase

Transition to full vehicle autonomy

Varying degrees of impact over time
Liability issues – AV cyber vulnerability

- **Vulnerable technology and software**
  - Product liability technology E&O
  - Equipment malfunction
  - Hacking / Malfeasance

- **Traditional Bodily injury / Property damage**
- **Privacy**

**Example: Jeep**

- 2015 hackers (researchers) accessed a Jeep while it was driving
- Took control of the radio, wiper blades and brakes
- Used a laptop and Smartphone to hack the Jeep from 10 miles away

Image - https://commons.wikimedia.org/wiki/File:Jeep_Grand_Cherokee_3.0_CRD_Overland_(WK)_%E2%80%93_Frontansicht_(1)_10._September_2011._D%C3%BCsseldorf.jpg
Auto ISAC

- Automobile manufacturers
- US Department of Transportation
- National Highway Traffic Safety Administration

Timing is uncertain
The AV revolution

Timing estimates

- **Boston Consulting Group (BCG)**

  “By 2017, AVs capable of traffic jam autopilot and autonomous valet parking should be on dealers’ lots, followed by highway autopilot with lane changing in 2018. Vehicles capable of urban autopilot could be ready in 2022, paving the way for fully autonomous vehicles by 2025.”

- **Frost and Sullivan**

  “Autonomous commercial vehicles will see active use on North American roadways by 2025.”

- **Google**

  “Not only might it take much longer to arrive than the company has ever indicated—as long as 30 years, said Chris Urmson—but the early commercial versions might well be limited to certain geographies and weather conditions. Self-driving cars are much easier to engineer for sunny weather and wide-open roads, and Urmson suggested the cars might be sold for those markets first. He further stated: "How quickly can we get this into people's hands? If you read the papers, you see maybe it's three years, maybe it's thirty years. And I am here to tell you that honestly, it's a bit of both."
Key factors temper progress
Regulatory environment

Acceptance

- **2016 AAA Report:** 75% of drivers are scared of self-driving cars

- **2015 J.D. Power Report:** 60% of “technologies consumers” preferred their next vehicle come equipped with blind spot detection and prevention systems, and collision mitigation systems – noted as “foundational building blocks leading to the possibility of fully-autonomous driving” but is this just the “techie generation”?

- **2015 Reuters Reported:** 20% of new car owners had not used half of the technology features available; 35% had not used the automatic parking systems.

- **2014 University of Michigan’s Transportation Research Institute Survey and 2014 Brookings Institute Study:** Both reveal a majority of respondents viewed AV benefits optimistically - but…a majority also expressed deep concerns about security issues; would not want to pay more for the technology or were very concerned about the legal liability issues.
Cost of AV technology

How much does autonomous technology add to a car’s sticker price?

**2012:** $150,000*

**2025:** $7,000 - $10,000

**2030:** $5,000

**2035:** $3,000

*Google Prius test car

Source: USA Today, Google Discloses Costs of its Driverless Car Tests, 6/14/2012, IHS, Self-Driving Cars Moving into the Industry’s Driver’s Seat, 1/2/2014
Looking ahead

Inevitable              Complex                    Evolving           Challenging

Insurance of auto exposure will change, possibly dramatically over time

Liability shifts from driver to manufacturers and technology companies

auto physical damage, cyber, products warranty may grow

- **Exposures will be more complex** – Cyber/software, car manufacturer, driver
- **Coverage issues will emerge and take time to evolve and stabilize**
- **Telematics use will grow** – continue the progress towards individual ratemaking
- **Insurance industry should understand the issues; be prepared to adjust and innovate** (particularly those with material personal or commercial auto portfolios)
How will the insurance industry respond?

- Some insurers will not be able to respond to coverage needs quickly enough
- Other insurers will develop new products and enter new markets
- Some insurers will increase deployment of risk mitigation technologies to their clients
- Insurers will need to participate in influencing regulatory change
- Insurers will need to become more innovative
How is Munich Re responding?

- Identifying promising tech start-ups in Silicon Valley
- Partnering with AV start-ups to stimulate progress
- Researching AV emerging risks
- Collecting and analyzing data
- Developing innovative products and solutions
- Educating and empowering stakeholders
Munich Re partnerships - Mobility Domain

- **University of Michigan** – a research partnership with the Mobility Transformation Center (MTC) that is establishing a commercially viable system of connected and automated vehicles
- **Active Safety Pilot Program** – implementing sensors on buses to alert drivers to presence of pedestrians to avoid collisions and reduce injuries
- **Techstars** – supporting entrepreneurs in developing data analytics and mobility solutions
- **DRIVEAI** – engaging and supporting a local non-profit in the development of AV technology
- Others under development
Questions
The On-Demand Economy
The On-Demand Economy

Kate E. R. Sampson
Managing Director
Marsh
(Moderator)
The On-Demand Economy

- Kate E. R. Sampson, Managing Director, Marsh (Moderator)
- Alex Benn, COO, Turo
- Melissa Gale, Sr. Manager, Insurance Solutions, Lyft
- Greg Hohman, Senior Vice President - West Region, Zurich Global Corporate - Casualty
- Brad Nail, Senior Manager of Insurance and Public Policy, Uber Technologies, Inc.
The On-Demand Economy

Kate E.R. Sampson
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Brad Nail
Uber
Conference Luncheon

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Track 2: The Risk Landscape
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Product Recall: How Social Media, Activist Regulators and Complex Supply Chains Have Changed the Risk Landscape
Product Recall

Todd Germano
Executive Vice President
Global Crisis Management Division
Allied World
(Moderator)
Product Recall

• Todd Germano, Executive Vice President, Global Crisis Management Division, Allied World (Moderator)
• Denise Balan, Head of Crisis Management, Americas, XL Catlin
• Paul Primavera, Executive Vice President, National Risk Control Services - Practice Leader, Lockton Companies
• Dawn H. Puro, Senior Vice President, Ironshore
• Andy Steinbach, Director of Global Risk Finance & Supply Chain Strategy, Yum! Brands, Inc.
Product Recall

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Workers’ Compensation
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Chief Executive Officer
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Global Corporate in N. America
(Moderator)
Workers’ Compensation

- Paul Horgan, Chief Executive Officer, Zurich, Global Corporate in North America (Moderator)
- Mike Fenlon, Sr. Director of Global Risk Management, UPS
- Maureen McCarthy, SVP and Manager, WC Fields Claims, Liberty Mutual Insurance
Workers’ Compensation

Paul Horgan
Zurich

Mike Fenlon
UPS

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Liberty Mutual Insurance
2016 Disruptors: The Casualty View
2016 Disruptors: The Casualty View

Bob Hartwig
President & Economist
Insurance Information Institute
2016 Insurance Industry Disruptors: The Casualty View

Advisen Casualty Insights Conference
New York, NY
March 31, 2016

Download at www.iii.org/presentations

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Tel: 212.346.5520 ♦ Cell: 917.453.1885 ♦ bobh@iii.org ♦ www.iii.org
Leading Disruptive Forces for the Insurance Industry Over the Next 5 Years

Economic and political concerns are overwhelmingly viewed as the most likely to be disruptive to insurers; Concerns over technology disruptions lag

A.M. Best Survey: Top Insurance Industry Concerns

- Cyber Risk: 31.0%
- Low Interest Rate Environment: 29.9%
- ERM / ORSA: 10.2%
- Mergers And Acquisitions: 8.6%
- Affordable Care Act: 4.8%
- Regulation / SIFI: 3.7%
- New BCAR: 3.2%
- DOL: 3.2%
- Alternative Capital: 2.7%
- Driverless Cars: 2.1%
- Credit Spreads: 0.5%

Insurance Industry: Financial Update & Outlook

2015 Was a Reasonably Good Year and Similar to 2014

2016: Could Be Similar to 2015
2005 ROE* = 9.6%
2006 ROE = 12.7%
2007 ROE = 10.9%
2008 ROE = 0.1%
2009 ROE = 5.0%
2010 ROE = 6.6%
2011 ROAS¹ = 3.5%
2012 ROAS¹ = 5.9%
2013 ROAS¹ = 10.2%
2014 ROAS¹ = 8.4%
2015:Q3 ROAS = 8.8%

• ROE figures are GAAP; ¹Return 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 – 2015E

*Profitability = P/C insurer ROEs. 2011-14 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

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

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

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

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


Sources: A.M. Best, ISO; Figure for 2010-2015E is from A.M. Best P&C Review and Preview, Feb. 16, 2016.
Distribution Facts

- Personal/Commercial lines split has been about 50/50 for many years.

- Personal lines growth now exceeds Commercial lines; Industrywide, Private Passenger Auto is by far the largest line of insurance and is currently the most important source of industry profits.

- Commercial lines growth in a flat rate environment is highly dependent on exposure growth driven by the expanding economy and product innovation.

Sources: A.M. Best; Insurance Information Institute research.
Distribution of Commercial Lines Premiums: Property vs. Liability, 2015

Commercial casualty/liability lines account for 59% of commercial premiums written vs. 41% for property lines.

- **Commercial Property**: $118.5B/41%
- **Commercial Liability/Casualty**: $167.7B/59%

Sources: SNL; Insurance Information Institute research.
Commercial lines is prone to more cyclical volatility than personal lines. Recently, growth has stabilized in the 4% to 5% range.

Economic Shocks, Inflation:
- 1976: 22.2%
- 1986: 30.5%

Tort Crisis
- 1986: 30.5%

Post-9/11
- 2002: 22.4%

Great Recession
- 2009: -9.0%

Post-Hurricane Andrew Bump:
- 1993: 6.3%

1988-2000: Period of inter-cycle stability

Post Katrina Bump:
- 2006: 7.7%

Note: Data include state funds beginning in 1998.
Source: A.M. Best; Insurance Information Institute.
The most profitable states over the past decade are widely distributed geographically, though none are in the Gulf region.

Profitability Benchmark: All P/C
US: 7.7%

Source: NAIC; Insurance Information Institute.
Some of the least profitable states over the past decade were hit hard by catastrophes.

Source: NAIC; Insurance Information Institute.
RNW Workers Compensation, 2005-2014 Average: Highest 25 States

(Source: NAIC; Insurance Information Institute)
RNW Workers Compensation, 2005-2014 Average: Lowest 25 States

Sources: NAIC; Insurance Information Institute
RNW Commercial Auto, 2005-2014 Average: Highest 25 States

(Percent)

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

(Percent)

Sources: NAIC; 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.
How Is Profitability Affected by the President’s Political Party?
P/C Insurance Industry ROE by Presidential Administration, 1950-2015*

OVERALL RECORD: 1950-2015*
Democrats 7.72%
Republicans 7.85%

*Truman administration ROE of 6.97% based on 3 years only, 1950-52;
Source: Insurance Information Institute

BLUE = Democratic President
RED = Republican President

Source: Insurance Information Institute
Presidential Candidate Anticipated as Having the Most Favorable Policies for the P/C Insurance Industry

- *Donald Trump: 26.5%
- Jeb Bush: 18.5%
- Marco Rubio: 11.3%
- Carly Fiorina: 10.6%
- *Ted Cruz: 9.9%
- *John Kasich: 6.0%
- *Hillary Clinton: 5.3%
- Chris Christie: 4.0%
- Other Candidate: 4.0%
- Ben Carson: 2.0%
- Rand Paul: 1.3%
- *Bernie Sanders: 0.7%
- Martin O'Malley: 0.0%

*Still in the race as of March 31, 2016.
## 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><strong>Economy</strong></td>
<td><em>Supply Side-Like Philosophy:</em> 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><em>Keynesian Philosophy:</em> More government spending on infrastructure, education, social services; Deficits likely increase as tax increases likely difficult to pass</td>
</tr>
<tr>
<td><strong>Interest Rates</strong></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><strong>Taxes</strong></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><strong>International Trade</strong></td>
<td>Protectionist Tendencies</td>
<td>Has criticized Trans-Pacific Partnership but is a realist on international matters</td>
</tr>
<tr>
<td><strong>Tort System</strong></td>
<td>Doesn’t like trial lawyers but seems to like filing lawsuits</td>
<td>Status Quo</td>
</tr>
</tbody>
</table>
2015 Property and Casualty Insurance Regulatory Report Card

Source: R Street Insurance Regulation Report Card, December 2015

Not Graded: District of Columbia
Investment Performance is a Key Driver of Profitability

Depressed Yields Will Necessarily Influence Underwriting & Pricing
Stock market is off to its worst start in years but volatility is endemic to stock markets—and may be increasing—but there is no persistent downward trend over long periods of time.

*Through March 29, 2016.
Source: NYU Stern School of Business: [http://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/histretSP.html](http://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/histretSP.html)

Due to persistently low interest rates, investment income fell in 2012, 2013 and 2014.

Investment earnings are still below their 2007 pre-crisis peak.

$38.9 $37.1 $36.7 $39.6 $49.5 $52.3 $54.6 $51.2 $47.1 $47.6 $49.2 $48.0 $47.3 $46.2 $46.5

($ Billions)

00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15E

Investment gains consist primarily of interest and stock dividends. *2015 figure is estimated based on annualized data through Q3.

Sources: ISO; Insurance Information Institute.

Yields on 10-Year U.S. Treasury Notes have been essentially below 5% for a full decade.

Despite the Fed’s December 2015 rate hike, yield remain low though short-term yields have seen some gains.

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 February 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.


Source: Federal Reserve Board of Governors; 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
As a group, P/C carriers have increased the percentage of bond investments in riskier instruments. Since 2006-07, that percentage has risen over 200 basis points (double what it was). As interest rates rise, will this percentage return to pre-recession levels?

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.

Sources: Blue Chip Economic Indicators (3/16 for 2016 and 2017; for 2018-2021 10/15 issue); Insurance Info. Institute.
Annual Inflation Rates, (CPI-U, %), 1990–2017F

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, 3/16 (forecasts).
Reduction in Combined Ratio Necessary to Offset 1% Decline in Investment Yield to Maintain Constant ROE, by Line*

<table>
<thead>
<tr>
<th>Line</th>
<th>Reduction in Combined Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal Lines</td>
<td>-1.8%</td>
</tr>
<tr>
<td>Pvt Pass Auto</td>
<td>-1.8%</td>
</tr>
<tr>
<td>Pers Prop</td>
<td>-2.0%</td>
</tr>
<tr>
<td>Commercial</td>
<td>-2.1%</td>
</tr>
<tr>
<td>Comm Auto</td>
<td>-3.1%</td>
</tr>
<tr>
<td>Credit</td>
<td>-3.3%</td>
</tr>
<tr>
<td>Comm Prop</td>
<td>-3.3%</td>
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<tr>
<td>Comm Cas</td>
<td>-3.7%</td>
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<tr>
<td>Fidelity/Surety</td>
<td>-4.3%</td>
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<tr>
<td>Warranty</td>
<td>-5.2%</td>
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<tr>
<td>Surplus Lines</td>
<td>-5.7%</td>
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<tr>
<td>Med Mal</td>
<td></td>
</tr>
<tr>
<td>WC</td>
<td>-7.3%</td>
</tr>
<tr>
<td>Reinsurance**</td>
<td></td>
</tr>
</tbody>
</table>

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.
Capital Accumulation Has Multiple Impacts

Alternative Capital Impacts?

The industry now has $1 of surplus for every $0.73 of NPW, close to the strongest claims-paying status in its history.

2010:Q1 data includes $22.5B of paid-in capital from a holding company parent for one insurer’s investment in a non-insurance business.

Sources: ISO, A.M. Best.

The P/C insurance industry entered 2016 in very strong financial condition.
Global Reinsurance Capital (Traditional and Alternative), 2006 - 2014

Total reinsurance capital reached a record $570B in 2013, up 68% from 2008.

But alternative capacity has grown 210% since 2008, to $50B. It has more than doubled in the past three years.

2014 data is as of June 30, 2014.
Source: Aon Benfield Analytics; Insurance Information Institute.
Alternative Capital as a Percentage of Traditional Global Reinsurance Capital

2014 data is as of June 30, 2014.

Source: Aon Benfield Analytics; Insurance Information Institute.

GLOBAL M&A UPDATE: A PATH TO GROWTH?

Are Capital Accumulation, Drive for Growth and Scale Stimulating M&A Activity?
M&A activity in 2015 will likely reach its highest level since 1998. Globally, across all sectors, M&A activity exceeded $200B.

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

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

Huge Shift from Domestic M&A Activity to Cross-Border

The share of M&A deal volume that was cross-border more than doubled in 2015.

M&A Activity Has Shifted Away from Europe and Towards Asia and N. America

Asian, N. American deal volumes were up sharply in 2015

M&A: Deal Rationale by Dollar Amount

Scale drives most deals (excluding health sector)

Top 25 US P/C Insurers by Direct Premiums Written, 2014

The ACE/Chubb deal will create a much larger commercial presence for the combined entity.
Premium Growth Rates Vary Tremendously by State and Over Time, But…

Net Written Premiums Fell 0.7% in 2007 (First Decline Since 1943) by 2.0% in 2008, and 4.2% in 2009, the First 3-Year Decline Since 1930-33.

Outlook
2016F: 4.0%
2017F: 3.8%

Shaded areas denote “hard market” periods
Note: Data through 1934 are based on stock companies only. Data include state funds beginning in 1998. Source: A.M. Best; Insurance Information Institute.
Direct Premiums Written: Comm. Lines
Percent Change by State, 2007-2014

Top 25 States

43 states showed commercial lines growth from 2007 through 2014

Growth Benchmarks: Commercial
US: 5.9%

Sources: SNL Financial LLC.; Insurance Information Institute.
Nearly half the states have yet to see commercial lines premium volume return to pre-crisis levels.
Pricing Trends

Personal Lines Pricing Is Up
Survey Results Suggest Commercial Pricing Has Flattened Out
Change in Commercial Rate Renewals, by Account Size: 1999:Q4 to 2015:Q4

Percentage Change (%)

Peak = 2001:Q4
+28.5%

Pricing Turned Negative in Early 2004 and Remained that way for 7 ½ years

Trough = 2007:Q3
-13.6%

Pricing turned positive in Q3:2011, the first increase in nearly 8 years; Q4:2015 renewals were down 2.8%; Some insurers posted stronger numbers.

KRW : No Lasting Impact

Note: CIAB data cited here are based on a survey. Rate changes earned by individual insurers can and do vary, potentially substantially.
Source: Council of Insurance Agents and Brokers; Barclay’s Capital; Insurance Information Institute.
Change in Commercial Rate Renewals, by Line: 1999:Q4 to 2015:Q4

Percentage Change (%)

Commercial Auto is currently experiencing the strongest rate trend, supplanting WC

Note: CIAB data cited here are based on a survey. Rate changes earned by individual insurers can and do vary, potentially substantially.

Source: Council of Insurance Agents and Brokers; Barclay's Capital; Insurance Information Institute.
Cumulative Qtrly. Rate Changes, by Line: 1999:Q4 to 2015:Q4

1999:Q4 = 100

Commercial Auto is currently experiencing the strongest rate trend, supplanting WC

Note: CIAB data cited here are based on a survey. Rate changes earned by individual insurers can and do vary, potentially substantially.
Source: Council of Insurance Agents and Brokers; Barclay's Capital; Insurance Information Institute.
Underwriting Performance
Commercial lines underwriting performance improved in 2013/14 but higher cats, diminishing prior year reserves and rising loss cost trends in some lines could push combined ratios higher.

*2007-2012 figures exclude mortgage and financial guaranty segments.
Source: A.M. Best (1990-2014); Conning (2015E-17F) Insurance Information Institute.
Commercial General Liability Underwriting Performance Has Been Volatile in Recent Years

Source: Conning Research and Consulting.
Commercial Auto Results Are Challenged as Rate Gains Barely Have Yet to Offset Adverse Frequency and Severity Trends

Sources: A.M. Best (1990-2014); Conning (2015E-2017F); Insurance Information Institute.
Collision Coverage: Severity & Frequency
Trends Are Both Higher in 2015*

Annual Change, 2005 through 2015*

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

*2015 figure is for the 4 quarters ending with 2015:Q3.

Source: ISO/PCI Fast Track data; Insurance Information Institute
Medical Malpractice Combined Ratio vs. All Lines Combined Ratio, 1991-2017F

MPL insurers in 2015 paid out an estimated $1.04 in loss and expense for every $1 they earned in premiums.

The dramatic improvement over the past decade has restored MPL’s viability, though some deterioration has occurred and is expected to continue.

In 2001, med mal insurers paid out $1.55 for every dollar earned.

Workers Compensation Combined Ratio: 1994–2016F

Workers Comp Results Began to Improve in 2012. Underwriting Results Deteriorated Markedly from 2007-2010/11 and Were the Worst They Had Been in a Decade.

Sources: A.M. Best (1994-2009); NCCI (2010-2014P) and are for private carriers only; Insurance Information Institute (2015-16F).
Workers Compensation Operating Environment

Workers Comp Results Have Improved Substantially in Recent Years
Payroll vs. Workers Comp Net Written Premiums, 1990-2015E

Payroll Base*

Payroll vs. Workers Comp Net Written Premiums, 1990-2015E

Payroll Base*

$Billions

$Billions

WC NWP

WC premium volume dropped two years before the recession began

WC net premiums written were down $14B or 29.3% to $33.8B in 2010 after peaking at $47.8B in 2005

Continued Payroll Growth and Rate Gains Suggest WC NWP Will Grow Again in 2016

*Private employment; Shaded areas indicate recessions. WC premiums are from NCCI through 2014; I.I.I. estimate for 2015. Sources: NBER (recessions); Federal Reserve Bank of St. Louis at http://research.stlouisfed.org/fred2/series/WASCUR (annualized as of Q3 2015); NCCI; I.I.I.
Workers Compensation Premium: Fourth Consecutive Year of Increase

Net Written Premium

$ Billions

<table>
<thead>
<tr>
<th>Year</th>
<th>State Funds ($B)</th>
<th>Private Carriers ($B)</th>
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<td>38.2</td>
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<tr>
<td></td>
<td>44.2</td>
<td>41.0</td>
</tr>
</tbody>
</table>

Pvt. Carrier NWP growth was +4.3% in 2014, +5.1% in 2013 and 8.7% in 2012

Source: NCCI from Annual Statement Data.
Includes state insurance fund data for the following states: AZ, CA, CO, HI, ID, KY, LA, MD, MO, MT, NM, OK, OR, RI, TX, UT.
Each calendar year total for State Funds includes all funds operating as a state fund that year.
Workers Compensation Lost-Time Claim Frequency Declined in 2014

Frequency Change: 2007—2012
Contracting: 7.9→7.1  -9.3%
Manufacturing: 13.6→12.0  -11.8%

Cumulative Change of –51.1%
(1994–2013 adj.)

*Adjustments primarily due to significant audit activity.
Source: NCCI Financial Call data, developed to ultimate and adjusted to current wage and voluntary loss cost level; Excludes high deductible policies; 1994-2013: Based on data through 12/31/13. Data for all states where NCCI provides ratemaking services, excluding WV.
Frequency is the number of lost-time claims per $1M pure premium at current wage and voluntary loss cost level.
Workers Compensation Medical Severity: Moderate Increase in 2014

Medical severity for lost time claims was up 4% in 2014, the largest increase since 2009.

Cumulative Change = 263% (1991-2014p)

1991-2013: Based on data through 12/31/2013, developed to ultimate
Based on the states where NCCI provides ratemaking services including state funds, excluding WV; Excludes high deductible policies.
The Strength of the Economy Will Greatly Influence Insurer Exposure Base Across Most Lines
US Real GDP Growth*

Real GDP Growth (%)

The Q4:2008 decline was the steepest since the Q1:1982 drop of 6.8%

Demand for Insurance Should Increase in 2016 as GDP Growth Continues at a Steady, Albeit Moderate Pace and Gradually Benefits the Economy Broadly

* Estimates/Forecasts from Blue Chip Economic Indicators.
Source: US Department of Commerce, Blue Economic Indicators 3/16; Insurance Information Institute.
Rising unemployment eroded payrolls and WC’s exposure base.

Unemployment peaked at 10% in late 2009.

Unemployment forecasts have been revised modestly downwards. Optimistic scenarios put the unemployment as low as 4.3% by Q4 of 2016.

Jobless figures have been revised downwards for 2016

Sources: US Bureau of Labor Statistics; Blue Chip Economic Indicators (3/16 edition); Insurance Information Institute.
GDP Growth: Advanced & Emerging Economies vs. World, 1970-2016F

Emerging economy growth rates are expected to increase to 4.3% in 2016 and 4.7% in 2017.

World output is forecast to grow by 3.4% in 2016 and 3.6% in 2017. The world economy shrank by 0.6% in 2009 amid the global financial crisis.

Advanced economies are expected to grow at a modest pace of 2.1% in 2016 and 2017.

Top Insurance Issues: *What’s Hot, What’s Not*

Technology Spiked, Catastrophes Crashed
Interest in Technology issues impacting the insurance industry are surging; Trend will continue in 2016.

Coverage of Catastrophe issues plunged (except for Riots, Wildfire)

*Based on a search of Lexis/Nexis (January 1-December15)
Applications of Technology in P/C Insurance Have Gripped the Media as Have Industry Solutions
Interest in Technology Issues and Insurance Is Surging: Presents Opportunity

- Insurers are at the intersection of many of the most important technological innovations of the early 21st century
  - Problem → Solution → Opportunity

- Industry is too often depicted as a technology laggard

- I.I.I. is highlighting the industry as being on the technological cutting edge—an innovative, nimble industry with solutions for managing countless new risks of the current era:
  - Sharing economy  Cyber  Auto Technology
  - Supply Chain  Climate Risk  Drones
  - Wearable devices  The “Internet of Things”

- Positions industry well with customers, investors, current and prospective workers/Millennials, regulators/legislators and (tech) media
Cyber Risk is a Rapidly Emerging Exposure for Businesses Large and Small in Every Industry
The 781 reported data breaches in 2015 was virtually unchanged from the record 783 reported in 2014. The number of exposed records soared to 169.1 million, and increase of 97.5%.

Data/Privacy Breach: Many Potential Costs Can Be Insured

Data Breach Event

- Costs of notifying affecting individuals
- Costs of notifying regulatory authorities
- Regulatory fines at home & abroad
- Forensic costs to discover cause
- Defense and settlement costs
- Lost customers and damaged reputation
- Cyber extortion payments
- Business Income Loss
Estimated Cyber Insurance Premiums Written, 2014 – 2020F

Cyber insurance premiums written could more than triple to $7.5 billion by 2020.


Source: Advisen (2014 est.); PwC (2015, 2020); Insurance Information Institute.
THE SHARING (ON-DEMAND) ECONOMY

Area of Extreme Interest—And Insurers Are Providing Solutions for this Dynamic Economic Segment
Sharing/On-Demand/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 insurance questions have arisen

- Insurance solutions are increasingly available to fill the many insurance gaps that arise
Regulation, Politics and the Sharing Economy

Insurers Need to Operate in a Complex and Rapidly Changing Regulatory Environment
"Many Americans are making extra money renting out a spare room, designing a website ... even driving their own car. This on demand or so called 'gig' economy is creating exciting opportunities and unleashing innovation, but it's also raising hard questions about workplace protections and what a good job will look like in the future."

--Hillary Clinton, July 13, 2015
In California, Uber Driver Is Employee, Not contractor: Agency
By Sarah McBride and Dan Levine

A driver for Uber is an employee, not a contractor, according to a California ruling that eventually could push up costs for the smartphone-based ride hailing service and hurt the closely watched start-up's valuation.

The California Labor Commissioner's decision could ripple through the burgeoning industry of providing services via smartphones, with potential implications for other “crowdsourced” services such as Uber rival Lyft, chore service TaskRabbit, and cleaning service Homejoy.

--Reuters, June 18, 2015
Hacking Your Ride:
Transportation Safety and Risk

#RiskyRide
SXSW
March 13, 2016, Austin, TX
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.
2015: Transportation Incidents on the Rise

“Is It Possible for Passengers to Hack Commercial Aircraft?”
- Federal Highway Administration Report, 1997

“Hackers Show They Can Take Control of Moving Jeep Cherokee”

“Fiat Chrysler Issues Recall Over Hacking”

“Hackers Cut a Corvette’s Brakes Via a Common Car Gadget”
- Wired, August 11, 2015
THE ‘INTERNET OF THINGS’

Capturing Economic Value Amid a Shifting Insurer Value Chain
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, Data and the Insurance Industry Value Chain

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

Wearables and Beyond…

Where The Internet of Things Meets Health, Disability and Workers Compensation Insurance
Wearables Show Significant Potential to Reduce Workplace Injury, Death

- **Wearables Today Can Monitor:**
  - Location
  - Heart rate
  - Temperature
  - Steps/Exertion
  - Sweat
  - Sleep

- **In the Near Future Could Monitor:**
  - Glucose level
  - Oxygen levels
  - Pain
  - Nausea
Beyond Wearables: Ingestibles and Implantables, VR Could Have Big Impacts Too

- **Ingestibles:**
  - Body chemistry
  - View malignancies
  - Detect diseases
  - Medication adherence

- **Implantables**

- **Smart Fabrics**

- **Virtual Reality**
  - Computer simulated reality

- **Augmented Reality**
  - Real world environment supplemented by computer generated inputs
Shifting Legal Liability & Tort Environment

Will the Tort Pendulum Swing Against Insurers?
Average Personal Injury Jury Award, 2009 – 2013

Average awards in Personal Injury cases have increased by more than 1/3 in recent years

<table>
<thead>
<tr>
<th>Best States</th>
<th>Worst States</th>
<th>New in 2015</th>
<th>Newly Notorious</th>
<th>Rising Above</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delaware</td>
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<td>Nebraska</td>
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<tr>
<td>Utah</td>
<td>West Virginia</td>
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</tbody>
</table>

The Nation’s Judicial “Hellholes”: 2014/2015

Watch List
- Atlantic County, New Jersey
- Mississippi Delta
- Montana
- Nevada
- Newport News, Virginia
- Philadelphia, Pennsylvania

Dishonorable Mention
- AL Supreme Court
- PA Supreme Court

Assignment of Benefits issue looms large in FL


Source: American Tort Reform Association; Insurance Information Institute
Thank you for your time and your attention!

Twitter: twitter.com/bob_Hartwig
Download at www.iii.org/presentations
The View from the Top
The View from the Top

Joe Peiser
Executive Vice President
Head of Casualty Broking
Willis Towers Watson
(Moderator)
The View from the Top

- Joe Peiser, Executive Vice President, Head of Casualty Broking, Willis Towers Watson (Moderator)
- Alexander Baugh, President, Liability & Financial Lines, AIG
- David Bresnahan, Executive Vice President, Berkshire Hathaway Specialty Insurance
- Duane Hercules, President, Safety National
- Chris Maleno, Senior Vice President, Chubb Group, Division President, Chubb North America Major Accounts
- Timothy W. Turner, Chairman and CEO, RT Specialty
Closing Remarks & Reception

Uber Promo! Use the code ADVISENLTD to receive $20 off a first ride (new users only, valid only in US, excludes uberT, expires 12/31/16)