The Global Economy, Rising Risk and Marine Insurance Markets

*Risk and Reward in a Troubled World*

San Francisco Board of Marine Underwriters
San Francisco, CA
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*Download at www.iii.org/presentations*

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Modest growth will continue in 2016 (~ 3.5% DPW in US)
- Exposure growth tied primarily to overall GDP growth/key sector drivers
- Rates remain flat to marginally negative for commercial lines in 2016
- Reinsurance pricing under pressure—more so for property risks

Underlying loss cost trends remain manageable

Industry is very well capitalized on a global scale

Continued pressure from alternative capital

Anti-trade, nationalistic sentiments bad for marine ins.

Sluggish growth abroad impacts trade flows

Strong dollar has hurt US manufacturing, exports

Commodity prices remain weak but have likely bottomed
Risk & Insurance

U.S. and Global Perspective

Marine Insurance Is Very Sensitive to the Global Economic and Political Environment
5 Major Categories for External Global Risks, Uncertainties and Fears: Insurance Solutions

1. Economic Risks
2. Geopolitical Risks
3. Environmental Risks
4. Technological Risks
5. Societal Risks

While risks can be broadly categorized, none are mutually exclusive.

Source: Adapted from World Economic Forum, *Global Risks 2014*; Insurance Information Institute.
Multitude of Exogenous Factors Influence Growth, Performance & Cyclicality

- Tepid growth in US, Europe
- Weakness in China/Emerging Economies
- Political uncertainty in the US, Brazil, Argentina
- UK “Brexit” concern
- Low/Negative Interest Rates
- Resurgent Terrorism Risk: ISIS & Other Groups
- Cyber Attacks
- Sabre Rattling (e.g., US-China, Russia)
- Severe Natural Disaster Losses ➔ Supply Chain
- Nationalism
- International trade deals under siege
- (Over)Regulation: Systemic Risk?
- Strong dollar has impacted manufacturing

Are “Black Swans” everywhere or does it just seem that way?

Concerns Shift Considerably Over Short Spans of Time. 2016 Includes a Mix of Environmental Economic, Social and Environmental Risks

Concerns Over the Impacts of Societal Risks Remained High in 2016, but Economic, Environment and Geopolitical Risks Also Loom Large

Globalization: The Global Economy Creates and Transmits Cycles & Risks

Globalization Is a Double Edged Sword—Creating Opportunity and Wealth But Potentially Creating and Amplifying Risk

Emerging vs. “Advanced” Economies
Commercial Lines Outlook: 2016

- Flat to modest deceleration in premium growth in 2016
- Rate environment suggests flat-to-slightly negative renewals in 2016
- Economic growth continues at a modest pace but unevenly across industries and regions; Nearly full employment and tighter labor market conditions are pluses and should drive new exposures
- Construction, Service sectors are positives but manufacturing, energy, commodities face headwinds
- Loss costs driven by modest frequency and severity trends, but helped by reserve releases, low cats, low infl.
- Property cat reinsurance costs continue to fall
- Investment income still under pressure from low yields
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.

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

Source: International Monetary Fund, World Economic Outlook, Jan. 2016; Insurance Information Institute.
Real GDP Growth Forecasts: Major Economies: 2014 – 2017F

Growth Prospects Vary Widely by Region; US and the UK Lead the Advanced Economies; Germany Leads in the Euro Area; China Has Slowed

Sources: Blue Chip Economic Indicators (2/2016 issue); IMF (Jan. 2016); Insurance Information Institute.
Real nonlife premium growth was stronger in the US in 2014 than in most of Europe.

<table>
<thead>
<tr>
<th>Market</th>
<th>Life</th>
<th>Non-Life</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advanced</td>
<td>3.8</td>
<td>1.8</td>
<td>2.9</td>
</tr>
<tr>
<td>Emerging</td>
<td>6.9</td>
<td>8.0</td>
<td>7.4</td>
</tr>
<tr>
<td>World</td>
<td>4.3</td>
<td>2.9</td>
<td>3.7</td>
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</table>

Source: Swiss Re, sigma, No. 4/2015.
World trade volume growth is expected to accelerate modestly by 2017 after dipping in 2015, 2016.

*Goods and services. 
World Trade Volume: IMPORTS 2010 – 2017F

Growth (%)

Advanced Economies

Import growth in Advanced Economies is expected to decelerate in 2016

Emerging Economies

Import growth in emerging economies outpaces Advanced Economies has been hit hard

Sources: IMF World Economic Outlook (April 2016); Insurance Information Institute.
World Trade Volume: EXPORTS 2010 – 2017F

Growth (%)

**Advanced Economies**

Export growth in advanced economies is expected to decelerate in 2016 before accelerating in 2017

**Emerging Economies**

Export growth in emerging economies has struggled but should improve in 2016-17

Sources: IMF *World Economic Outlook* (April 2016); Insurance Information Institute.
Two decades ago, world trade powered just 20 percent of global economic activity—now it’s 30 percent but has struggled recently.

Sources: World Trade Organization data through 2014 from *International Trade Statistics 2015*; Insurance Information Institute
Growth in economic output will be concentrated in certain developing economies such as China and India.

China will likely become the world’s largest economy between 2025 and 2030.

Source: OECD; Insurance Information Institute.
Ocean Marine Overview

Underwriting is Historically Volatile But Improved in Recent Years
Ocean Marine Results Have Been Quite Volatile Over the Past Decade, with the Combined Ratio Ranging by More than 20 Points

Sources: A.M. Best; Insurance Information Institute.
Ocean Marine vs. Commercial Lines

Ocean Marine has marginally outperformed Commercial Lines overall over the period from 1989 – 2014

Sources: A.M. Best; Insurance Information Institute.
Ocean Marine Premium Volume Fell During the Global Financial Crisis, Increased but Is Now Falling Again

Sources: A.M. Best; Insurance Information Institute.
Global Insurance Premium Growth Trends

Growth Is Uneven Across Regions and Market Segments
Life insurance accounted for nearly 57% of global premium volume in 2012 vs. 43% for Non-Life

Total Premium Volume = $4.613 Trillion*

Life, $2.62, 56.8%
Non-Life, $1.99, 43.2%

Source: Swiss Re, sigma, No. 3/2013; Insurance Information Institute.
Non-Life Insurance: Global Real (Inflation Adjusted) Premium Growth, 2014

Real nonlife premium growth was stronger in the US in 2014 than in most of Europe.

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<td>4.3</td>
<td>2.9</td>
<td>3.7</td>
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Source: Swiss Re, sigma, No. 4/2015.
Emerging market growth has exceeded that of industrialized countries in 30 of the past 34 years, including the entirety of the global financial crisis and subsequent recovery.
Emerging market shares rose rapidly over the past 50 years.
Population Distribution, by Region: 1962-2062F

Enormous population shifts will impact insurance demand over the next half century

<table>
<thead>
<tr>
<th></th>
<th>100%</th>
<th>% of global population</th>
</tr>
</thead>
<tbody>
<tr>
<td>1962</td>
<td>17.7%</td>
<td>30.8%</td>
</tr>
<tr>
<td>1987</td>
<td>13.3%</td>
<td>34.6%</td>
</tr>
<tr>
<td>2012</td>
<td>11.4%</td>
<td>37.7%</td>
</tr>
<tr>
<td>2023</td>
<td>10.8%</td>
<td>38.5%</td>
</tr>
<tr>
<td>2062</td>
<td>9.9%</td>
<td>38.2%</td>
</tr>
</tbody>
</table>

Africa is expected to be the fastest population growth over the next 50 years, but no expectation now of Asia-like growth in economies or insurance demand.

Source: Swiss Re, sigma, No. 3/2013 from United Nations Department of Economic and Social Affairs, Population Division.
The was a clear but highly relationship between real GDP growth and real premium growth in advance markets in 2012.

The correlation between real GDP growth and real premium growth in emerging markets was much stronger than in advanced markets in 2012.


Advanced Markets

<table>
<thead>
<tr>
<th>Country</th>
<th>Premiums in USD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Switzerland</td>
<td>8,000</td>
</tr>
<tr>
<td>Netherlands</td>
<td>5,000</td>
</tr>
<tr>
<td>Denmark</td>
<td>4,000</td>
</tr>
<tr>
<td>Japan</td>
<td>3,000</td>
</tr>
<tr>
<td>Luxembourg</td>
<td>2,000</td>
</tr>
<tr>
<td>Finland</td>
<td>1,000</td>
</tr>
<tr>
<td>Hong Kong</td>
<td>0</td>
</tr>
<tr>
<td>Norway</td>
<td>100</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>100</td>
</tr>
<tr>
<td>United States</td>
<td>100</td>
</tr>
<tr>
<td>Ireland</td>
<td>100</td>
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<tr>
<td>Australia</td>
<td>100</td>
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<tr>
<td>Germany</td>
<td>100</td>
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<tr>
<td>Spain</td>
<td>100</td>
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<tr>
<td>Italy</td>
<td>100</td>
</tr>
<tr>
<td>Greece</td>
<td>100</td>
</tr>
<tr>
<td>Portugal</td>
<td>100</td>
</tr>
<tr>
<td>Ireland</td>
<td>100</td>
</tr>
<tr>
<td>Cyprus</td>
<td>100</td>
</tr>
<tr>
<td>Malta</td>
<td>100</td>
</tr>
<tr>
<td>Average</td>
<td>100</td>
</tr>
</tbody>
</table>

Spending and penetration are generally much higher in advanced markets, though growth is fastest in emerging markets.

Emerging Markets

<table>
<thead>
<tr>
<th>Country</th>
<th>Premiums in USD</th>
</tr>
</thead>
<tbody>
<tr>
<td>United Arab Emirates</td>
<td>1,200</td>
</tr>
<tr>
<td>Slovenia</td>
<td>1,000</td>
</tr>
<tr>
<td>Mexico</td>
<td>800</td>
</tr>
<tr>
<td>South Africa</td>
<td>600</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>500</td>
</tr>
<tr>
<td>Bahrain</td>
<td>400</td>
</tr>
<tr>
<td>Qatar</td>
<td>300</td>
</tr>
<tr>
<td>Chile</td>
<td>200</td>
</tr>
<tr>
<td>Malaysia</td>
<td>150</td>
</tr>
<tr>
<td>Mauritius</td>
<td>140</td>
</tr>
<tr>
<td>Poland</td>
<td>120</td>
</tr>
<tr>
<td>Peru</td>
<td>120</td>
</tr>
<tr>
<td>Venezuela</td>
<td>120</td>
</tr>
<tr>
<td>Bahrain</td>
<td>120</td>
</tr>
<tr>
<td>Namibia</td>
<td>120</td>
</tr>
<tr>
<td>Brazil</td>
<td>120</td>
</tr>
<tr>
<td>Argentina</td>
<td>120</td>
</tr>
<tr>
<td>Croatia</td>
<td>120</td>
</tr>
<tr>
<td>Kuwait</td>
<td>100</td>
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<tr>
<td>Hungary</td>
<td>100</td>
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<tr>
<td>Panama</td>
<td>100</td>
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<tr>
<td>Lebanon</td>
<td>100</td>
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<td>Uganda</td>
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<td>Thailand</td>
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<td>Oman</td>
<td>100</td>
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<td>Jamaica</td>
<td>100</td>
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<tr>
<td>Mexico</td>
<td>100</td>
</tr>
<tr>
<td>Saudi Arabia</td>
<td>100</td>
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<tr>
<td>Costa Rica</td>
<td>100</td>
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<tr>
<td>Colombia</td>
<td>100</td>
</tr>
<tr>
<td>Chile</td>
<td>100</td>
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<td>Brazil</td>
<td>100</td>
</tr>
<tr>
<td>Average</td>
<td>100</td>
</tr>
</tbody>
</table>

Chinese spending on insurance is very similar to Russia, but Russian spending is mostly non-life and in China the majority is life.

Source: Swiss Re, sigma, No. 3/2013.
The Unfortunate Nexus: Opportunity, Risk & Instability

Most of the Global Economy’s Future Gains Will be Fraught with Much Greater Risk and Uncertainty than in the Past
Political Risk: Greatest Opportunities Often in Risky Nations

As of 2015:Q4

Latin and South America have modest terrorist threats though Brazil is elevated

Terrorism remains a greater concern in the Middle East, Africa and South Asia

Source: Aon PLC; Insurance Information Institute.
The fastest growing markets are generally also among the politically riskiest, including East and South Asia and Africa.

Problems in the Ukraine will intensify political risk in several former Soviet republics.

Latin and South America also present insurers with growth opportunities but political instability has increased markedly.

Source: Aon PLC; Insurance Information Institute.
The US, China, Japan and Western Europe lead the world in merchandise exports.

Loss Distribution by Type of Insurance from Sept. 11 Terrorist Attack ($ 2015)

Total Insured Losses Estimate: $43.7B**

*Loss total does not include March 2010 New York City settlement of up to $657.5 million to compensate approximately 10,000 Ground Zero workers or any subsequent settlements.

**$32.5 billion in 2001 dollars.

Source: Insurance Information Institute.
P/C (Re)Insurance Industry
Financial Overview

2015 Was a Reasonably Good Year
and Very Similar to 2014
Commercial Lines Outlook: 2016

- Flat to modest deceleration in premium growth in 2016
- Rate environment suggests flat-to-slightly negative renewals in 2016
- Economic growth continues at a modest pace but unevenly across industries and regions; Nearly full employment and tighter labor market conditions are pluses and should drive new exposures
- Construction, Service sectors are positives but manufacturing, energy, commodities face headwinds
- Loss costs driven by modest frequency and severity trends, but helped by reserve releases, low cats, low infl.
- Property cat reinsurance costs continue to fall
- Investment income still under pressure from low yields

- 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 ROAS = 8.4%

• 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 – 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
- 4 Hurricanes
- Katrina, Rita, Wilma
- Financial Crisis*
- Sandy
- Record Tornado Losses
- Modestly higher CATs
- Low 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

As Recently as 2001, Insurers Paid Out Nearly $1.16 for Every $1 in Earned Premiums

Relatively Low CAT Losses, Reserve Releases

Cyclical Deterioration

Best Combined Ratio Since 1949 (87.6)

Avg. CAT Losses, More Reserve Releases

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

Sandy Impacts

Lower CAT Losses


Sources: A.M. Best, ISO; Figure for 2010-2014 is from A.M. Best P&C Review and Preview, Feb. 16, 2016.
Number of Years with Underwriting Profits by Decade, 1920s–2010s

Underwriting Profits Were Common Before the 1980s (40 of the 60 Years Before 1980 Had Combined Ratios Below 100) – But Then They Vanished. Not a Single Underwriting Profit Was Recorded in the 25 Years from 1979 Through 2003

* 2009 combined ratio excl. mort. and finl. guaranty insurers was 99.3, which would bring the 2000s total to 4 years with an u/w profit.

**Data for the 2010s is for the period 2010 through 2015.

Note: Data for 1920–1934 based on stock companies only.

Sources: Insurance Information Institute research from A.M. Best Data.
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.
Policyholder Surplus, 2006:Q4–2015:Q4

($ Billions)

2007:Q3 Pre-Crisis Peak

Drop due to near-record 2011 CAT losses

Surplus as of 12/31/15 stood at a near-record high $673.7B

The industry now has $1 of surplus for every $0.76 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.

Source: ISO, A.M. Best.

The P/C insurance industry entered 2016 in very strong financial condition.
US Policyholder Surplus: 1975–2015*

($ Billions)

Surplus as of 12/31/15 was a near-record $673.7, down 0.2% from $675.2 of 12/31/14, and up 54.1% ($236.6B) from the crisis trough of $437.1B at 3/31/09

“Surplus” is a measure of underwriting capacity. It is analogous to “Owners Equity” or “Net Worth” in non-insurance organizations

The Premium-to-Surplus Ratio Stood at $0.76:$1 as of 12/31/15, a Near Record Low (at Least in Recent History)

* As of 12/31/15.

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.

(Percent)

1975-78  1984-87  2000-03

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: 3.9%
2017F: 3.8%

2015: 3.4%
2014: 4.2%
2013: 4.4%
2012: +4.2%

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.
Top 25 States

North Dakota was the country’s growth leader over the past 7 years with premiums written expanding by 70.7%, fueled by the state’s energy boom.

Growth Benchmarks: Total P/C
US: 13.0%

Sources: SNL Financial LC.; Insurance Information Institute.
Growth was negative in 4 states and DC between 2007 and 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.

Sources: SNL Financial LLC.; Insurance Information Institute.
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.
Cumulative Qtrly. Commercial Rate Changes, by Account Size: 1999:Q4 to 2015:Q4

1999:Q4 = 100

Pricing for smaller accounts has more stable than for larger accounts

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 (%)

Peak = 2001:Q4

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

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Commercial Auto is currently experiencing the strongest rate trend, supplanting WC.
CIAB: Average Commercial Rate Change, All Lines, (1Q:2004–4Q:2015)

(Percent)

Q2 2011 marked the last of 30th consecutive quarter of price declines

Pricing as of Q4:2015 remained somewhat negative

KRW Effect

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 & Brokers; Insurance Information Institute
Change in Commercial Rate Renewals, by Line: 2015:Q4

Percentage Change (%)

- Commercial Property: -3.5%
- General Liability: -3.4%
- Umbrella: -2.8%
- Workers Comp: -2.6%
- Business Interruption: -2.2%
- Construction: -1.3%
- Surety: -0.1%
- EPL: 1.6%
- D&O: 1.9%
- Commercial Auto: 2.7%

Major Commercial Lines Renewals Were Mixed to Down in Q4:2015; EPL, D&O and Commercial Auto Saw Gains

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; Insurance Information Institute.
INVESTMENTS:
THE NEW REALITY

Investment Performance is a Key Driver of Profitability

Depressed Yields Will Necessarily Influence Underwriting & Pricing
S&P 500 Index Returns, 1950 – 2016*

Stock market is off to its worst start ever but 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.

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

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1 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 more than a 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 March 2016.

Distribution of Invested Assets: P/C Insurance Industry, 2013

$ Billions

- Stocks, 22%
- Bonds, 62%
- Cash, Cash Equiv. & ST Investments, 6%
- All Other, 10%

Total Invested Assets = $1.5 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
Net Investment Yield on Property/Casualty Insurance Invested Assets, 2007–2016P*

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.

Sources: Blue Chip Economic Indicators (4/16 for 2016 and 2017; for 2018-2021 3/16 issue); Insurance Info. Institute.
Annual Inflation Rates, (CPI-U, %), 1990–2017F

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.

Slack in the U.S. economy and falling energy prices suggests that inflationary pressures should remain subdued for an extended period of times.

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*

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

Lower Investment Earnings Place a Greater Burden on Underwriting and Pricing Discipline
How Is Profitability Affected by the President’s Political Party?
P/C Insurance Industry ROE by Presidential Administration, 1950-2015*

<table>
<thead>
<tr>
<th>President</th>
<th>Overall ROE</th>
</tr>
</thead>
<tbody>
<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>
<tr>
<td>Nixon/Ford</td>
<td>6.98%</td>
</tr>
<tr>
<td>Reagan I</td>
<td>7.68%</td>
</tr>
<tr>
<td>Clinton II</td>
<td>7.98%</td>
</tr>
<tr>
<td>G.W. Bush II</td>
<td>8.33%</td>
</tr>
<tr>
<td>Clinton I</td>
<td>8.65%</td>
</tr>
<tr>
<td>Nixon</td>
<td>8.93%</td>
</tr>
<tr>
<td>Obama II</td>
<td>8.93%</td>
</tr>
<tr>
<td>Reagan II</td>
<td>15.10%</td>
</tr>
<tr>
<td>Carter</td>
<td>16.43%</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

**BLUE** = Democratic President    **RED** = Republican President

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;</td>
<td><strong>Keynesian Philosophy:</strong> More government spending on</td>
</tr>
<tr>
<td></td>
<td>Deficits likely grow as tax cuts are combined with targeted increased</td>
<td>infrastructure, education, social services; Deficits</td>
</tr>
<tr>
<td></td>
<td>spending on Homeland Security, Defense, etc.</td>
<td>likely increase as tax increases likely difficult to</td>
</tr>
<tr>
<td></td>
<td></td>
<td>pass</td>
</tr>
<tr>
<td>Interest Rates</td>
<td>May trend higher with larger deficits; Shift from monetary policy to</td>
<td>Status quo at the Fed; Net impact on interest rates</td>
</tr>
<tr>
<td></td>
<td>fiscal focus (tax cuts, government spending)</td>
<td>unclear</td>
</tr>
<tr>
<td>Taxes</td>
<td>Favors lower tax rates for corporate and personal income tax rates;</td>
<td>Unlikely to reduce taxes or embark on major overhaul</td>
</tr>
<tr>
<td></td>
<td>Tax code overhaul?</td>
<td>of tax code</td>
</tr>
<tr>
<td>International</td>
<td>Protectionist Tendencies</td>
<td>Has criticized Trans-Pacific Partnership but is a</td>
</tr>
<tr>
<td>Trade</td>
<td></td>
<td>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>
</tbody>
</table>
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.

Global M&A Activity Tends to Follow Equity Market Performance

The number and volume of insurance M&A deals was up globally in 2015.

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

Insurance M&A Volumes
Deals of value > $100M (Since 1990)

<table>
<thead>
<tr>
<th>Period</th>
<th>Total Deal Value</th>
<th>Domestic (%)</th>
<th>Cross-Border (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990–1994</td>
<td>$79 Bn</td>
<td>88%</td>
<td>12%</td>
</tr>
<tr>
<td>1995–1999</td>
<td>$364 Bn</td>
<td>85%</td>
<td>15%</td>
</tr>
<tr>
<td>2000–2004</td>
<td>$245 Bn</td>
<td>89%</td>
<td>11%</td>
</tr>
<tr>
<td>2005–2009</td>
<td>$299 Bn</td>
<td>82%</td>
<td>18%</td>
</tr>
<tr>
<td>2010–YTD 2015</td>
<td>$314 Bn</td>
<td>62%</td>
<td>38%</td>
</tr>
</tbody>
</table>

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

M&A: Deal Rationale by Dollar Amount

Scale drives most deals (excluding health sector)

Some Key Drivers in the US Economy

Economic Factors Driving Exposure Growth and Insurer Performance
US Real GDP Growth*

Real GDP Growth (%)

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

Recession began in Dec, 2007

Q1 2014/15 GDP data were hit hard by this year’s “Polar Vortex” and harsh winter

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.
US Unemployment Rate Forecast

2007:Q1 to 2017:Q4F*

- Rising unemployment eroded payrolls and WC’s exposure base.
- Unemployment peaked at 10% in late 2009.
- Jobless figures have been revised downwards for 2016.
- Unemployment forecasts have been revised modestly downwards. Optimistic scenarios put the unemployment as low as 4.3% by Q4 of 2016.

* = actual;  = forecasts

Sources: US Bureau of Labor Statistics; Blue Chip Economic Indicators (3/16 edition); Insurance Information Institute.
Continued Business Investment Will Spur Commercial Exposure Growth

Continued business investment will be a potent driver of commercial property and liability insurance exposures. It should drive employment and WC payroll exposures as well (with a lag).

The level and direction of interest rates is likely to affect these growth rates.

Sources: Blue Chip Economic Indicators, 2/2016 (history and forecasts for 2016 and 2017, 10/2015 for forecasts for 2018 and 2019; Insurance Information 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, 4/16 (forecasts).
Commodity Prices Have Plunged to Lowest Levels Since 2000

Bank of Canada, Commodity price indices, weekly data, (indexed to Jan 2000=100)

Note: Total index includes energy, metals & minerals, agriculture, forestry and fish.

Upside for most advanced economies, but a downside for commodity exporters

Source: Datastream from IUMI Hamburg 2016 presentation by Doug Harrell, Aspen Insurance.
The U.S. Manufacturing Sector Is Being Buffeted by a High Dollar, Weak Export Markets and Plunging Oil Prices
The manufacturing sector expanded for 68 of the 72 months from Jan. 2010 through Dec. 2015. Manufacturing sector now appears to be in contraction due to weakness abroad, strong dollar and collapse in oil prices.

Monthly shipments in Nov. 2014 exceeded the pre-crisis (July 2008) peak but has declined in recent months. Weakness abroad, falling energy prices and a strong dollar are hurting the sector, especially exports. Manufacturing growth leads to gains in many commercial exposures: WC, Commercial Auto, Marine, Property, and various Liability Coverages.

* Seasonally adjusted; Data published Feb. 4, 2016.
Manufacturing Growth for Selected Sectors, 2015 vs. 2014*

Manufacturing of non-durable goods is weaker than for durables

Manufacturing Is Contracting Across a Number of Sectors, Especially Petroleum. Adverse Exposure Impacts Are Likely for: WC, Commercial Property, Commercial Auto and Certain Liability Coverages

*Seasonally adjusted; Date are YTD comparing data through November 2015 to the same period in 2014.
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, an increase of 97.5%.

Data/Privacy Breach:
Many Potential Costs Can Be Insured

Data Breach Event

- Costs of notifying regulatory authorities
- Costs of notifying affecting individuals
- Regulatory fines at home & abroad
- Defense and settlement costs
- Lost customers and damaged reputation
- Cyber extortion payments
- Forensic costs to discover cause
- 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.
Insured Catastrophe Losses

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

2016: Cat Activity Rising
U.S. Insured Catastrophe Losses

($ Billions, $ 2015)

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

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

*Estimate through 12/31/15 in 2015 dollars.

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.

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

- **Hurricanes & Tropical Storms, $161.2**
- **Wind/Hail/Flood (3), $21.4**
- **Winter Storms, $26.9**
- **Events Involving Tornadoes (2), $154.9**
- **Tornado share of CAT losses is rising**
- **39.2%**
- **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/TS are excluded.**

Winter storm losses were much above average in 2014/15 are will push this share up.
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; Northridge still ranks as the 4\textsuperscript{th} costliest disaster of all time

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

Includes Tuscaloosa, AL, tornado
Includes Joplin, MO, tornado

Sources: PCS; Insurance Information Institute inflation adjustments to 2014 dollars using the CPI.
Cat Bond Issuance Declined Slightly in 2015 from 2014’s Record Pace. Lower Yields on Bonds Explain Some of the Contraction.

US Property CAT Rate on Line Index &
Global Reinsurance ROE

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.
Alternative Capital

New Investors Continue to Change the Reinsurance Landscape

First I.I.I. White Paper on Issue Was Released in March 2015
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.

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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.
Thank you for your time and your attention!

Twitter: twitter.com/bob_Hartwig

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