Global Reinsurance
A Rating Agency Perspective

Martyn Street
Harish Gohil

22 October 2015

Agenda

The Big Picture
2016 Key Issues
Observations & Expectations
Alternative Capital Update
Natural Catastrophe Losses

Insured Losses Remain Historically Low Driving Price Softening

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
<th>Location</th>
<th>Economic Loss (USDbn)</th>
<th>Insured Loss (USDbn)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feb</td>
<td>Winter storm</td>
<td>US/Canada</td>
<td>2.4</td>
<td>1.8</td>
</tr>
<tr>
<td>Mar/Apr</td>
<td>Winter storm</td>
<td>Europe</td>
<td>1.4</td>
<td>1.0</td>
</tr>
<tr>
<td>Apr</td>
<td>Severe storm</td>
<td>US</td>
<td>1.4</td>
<td>1.0</td>
</tr>
<tr>
<td>Apr</td>
<td>Severe storm</td>
<td>US</td>
<td>1.1</td>
<td>0.8</td>
</tr>
<tr>
<td>May</td>
<td>Severe storm</td>
<td>US</td>
<td>1.3</td>
<td>0.8</td>
</tr>
<tr>
<td>Overall 1H15 Total</td>
<td></td>
<td></td>
<td>35.0</td>
<td>12.0</td>
</tr>
</tbody>
</table>

Total 2014 (1H14) 110.0 (60.0) 31.0 (23.0)
Total 2013 (1H13) 140.0 (66.0) 39.0 (21.0)
Total 2012 (1H12) 173.0 (58.0) 65.0 (19.0)
Total 2011 (1H11) 370.0 (302.0) 115.8 (81.7)

Source: Munich Re NatCatService

Investment Yields – Selected Major Sovereigns
Low Yields Maintain Earnings Pressure / Attract External Capital

Source: Citigroup's world government bond index 10-year government bond yields (local currency)
Investment Yields – Selected Major Sovereigns

Low Yields Maintain Earnings Pressure / Attract External Capital

Source: Citigroup’s world government bond index 3-5 year government bond yields (local currency)

2016 Key Issues

1. Managing through protracted soft market requires discipline

2. Prospect of M&A could fuel complacency

3. Alternative capital capacity will continue to impact market
Capital Remains Strong – Development Uneven

Change in 1H15 Equity – Reinsurers

Share Repurchase Activity Decreases

<table>
<thead>
<tr>
<th>(USDm)</th>
<th>H115</th>
<th>H114</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ace Limited</td>
<td>750</td>
<td>557</td>
</tr>
<tr>
<td>Alleghany Corporation</td>
<td>41</td>
<td>160</td>
</tr>
<tr>
<td>Allied World Assurance Company Holdings Ltd.</td>
<td>246</td>
<td>138</td>
</tr>
<tr>
<td>Arch Capital Holdings Ltd.</td>
<td>362</td>
<td>-</td>
</tr>
<tr>
<td>Aspen Insurance Holdings Ltd.</td>
<td>84</td>
<td>31</td>
</tr>
<tr>
<td>AXIS Capital Holdings Ltd.</td>
<td>26</td>
<td>318</td>
</tr>
<tr>
<td>Berkshire Hathaway Inc.</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Endurance Specialty Holdings Ltd.</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Everest Re Group, Ltd.</td>
<td>125</td>
<td>325</td>
</tr>
<tr>
<td>Fairfax Financial Holdings Ltd.</td>
<td>60</td>
<td>20</td>
</tr>
</tbody>
</table>

Source: Company reports
Share Repurchase Activity Decreases (cont.)

<table>
<thead>
<tr>
<th>Company</th>
<th>H115</th>
<th>H114</th>
</tr>
</thead>
<tbody>
<tr>
<td>Markel Corporation</td>
<td>23</td>
<td>17</td>
</tr>
<tr>
<td>Montpelier Re Holding Ltd.</td>
<td>-</td>
<td>94</td>
</tr>
<tr>
<td>Munich Re</td>
<td>340</td>
<td>1,097</td>
</tr>
<tr>
<td>RenaissanceRe Holdings Ltd.</td>
<td>1</td>
<td>315</td>
</tr>
<tr>
<td>PartnerRe Ltd.</td>
<td>71</td>
<td>316</td>
</tr>
<tr>
<td>Platinum Underwriters Holdings Ltd.</td>
<td>-</td>
<td>111</td>
</tr>
<tr>
<td>Validus Holdings Ltd.</td>
<td>143</td>
<td>197</td>
</tr>
<tr>
<td>White Mountains Insurance Group</td>
<td>19</td>
<td>26</td>
</tr>
<tr>
<td>XL Group plc</td>
<td>-</td>
<td>352</td>
</tr>
<tr>
<td>Total</td>
<td>2,290</td>
<td>4,073</td>
</tr>
</tbody>
</table>

Source: Company reports

Reinsurance Combined Ratio Volatility

Average Combined Ratio, 2010-14: Europe and Bermuda

Size of bubble denotes NWP. Reinsurance operations only.
Source: Fitch, companies
Reinsurance Combined Ratio Volatility

Average Combined Ratio, 2010-14: Major European

Size of bubble denotes NWP. Reinsurance operations only.
Source: Fitch, companies.

Prior Year Development Remains in Surplus

2014 – Calendar and Accident Year Combined Ratio

Source: Fitch
Reinsurance Renewal Pricing Trends

**Pricing Floor Not Yet Reached**

**Property** (June/July 2015)

- No Loss
- Loss Hit
- Cat No Loss
- Cat Loss Hit
- US Cat No Loss

**Casualty** (June/July 2015)

- XL No Loss
- XL Loss Hit
- US Motor (L)
- US Motor (NL)
- US General TPL

Source: Company and broker reports

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Invested Asset Allocation

**Major Asset Classes – 2014**

- Bonds, 59%
- Real Estate, 1%
- Shares, 5%
- Mortgages, 1%
- Other, 6%
- Deposits with Cedants, 9%
- Loans, 11%
- Cash & Bank Deposits, 6%

**Key Points**

- Fixed-income remains major class
- Conservative risk appetite
- Key focus for 2016
  - Volatility due to interest rate movements
  - Changing risk appetite
  - Duration management

Note: Combined composition for Hannover Re, Lloyd’s of London, Munich Re, SCOR & Swiss Re. Source: Fitch
Fixed Income Credit Quality

2011
- AAA: 49%
- AA: 17%
- A: 19%
- BBB: 10%
- <BBB & NR: 4%

2014
- AAA: 32%
- AA: 24%
- A: 26%
- BBB: 13%
- <BBB & NR: 5%

Note: Combined composition for Hannover Re, Munich SCOR & Swiss Re. Source: Fitch

ROE Declines – 10% Could Change View

Average Net Income ROE

Source: Fitch
Reinsurer Merger and Acquisition Activity

“Convergence”
- blurring the line between traditional and alternative capital

- Capital Markets are finding ways to enter the property cat space
  - Sidecars, ILWs, Collateral Reinsurance, Cat Bonds
  - Search for yield in low rate environment
  - Aon estimates to grow to $120 B to $150B (from around $70 B)

- Direct writers are retaining more risk
  - Buoyed by lack of Cat 3-type events

- Reinsurers are not sitting still
  - Forming partnerships, M&A, setting up ILS shops
Alternative Reinsurance Capacity

Alternative Market Capacity Continues to Grow
Alternative Capacity as a % of Global Property Catastrophe Reinsurance Limit

Source: Guy Carpenter Estimates

Catastrophe Bond Issuance

Issuance Remains Strong
Catastrophe Bonds (Non-Life)

Source: Willis Capital Markets & Advisory
ILS Growth  
- can the recent success continue?

- Tough sledding ahead
  - What goes up, must come down – significant maturities coming due ($6 B in 2016)
  - Unless there is a paradigm shift, we believe not much more growth

Basic Hurdles Still Exist for Cat Bonds  
- though changes are in the air

- Niche market
- Expensive to structure
- Lack of robust secondary market
- Seasonality
- Peak perils
- Lack of standardization
- Private placements

Source: Willis Capital Markets
Quake, Quake and more Quake
- no wind peril since Compass Re (June, 2015)

<table>
<thead>
<tr>
<th>Company</th>
<th>Sponsor</th>
<th>Issue Date</th>
<th>Peril covered</th>
<th>Covered Area</th>
<th>Par Amount (MM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AZZURRO RE</td>
<td>UNIPOLSEI GROUP</td>
<td>JUN 2015</td>
<td>EQ - ITaly</td>
<td>INDEMNITY</td>
<td>€ 200</td>
</tr>
<tr>
<td>PANDA RE</td>
<td>CHINA RE</td>
<td>JULY 2015</td>
<td>EQ - CHINA</td>
<td>INDEMNITY</td>
<td>$ 50</td>
</tr>
<tr>
<td>ACORN RE</td>
<td>HANNOVER RE (Kaiser)</td>
<td>JULY 2015</td>
<td>EQ - CALIFORNIA</td>
<td>PARAMETRIC</td>
<td>$ 350</td>
</tr>
<tr>
<td>BOSPHORUS LTD</td>
<td>TCIP</td>
<td>AUG 2015</td>
<td>EQ - TURKEY</td>
<td>PARAMETRIC</td>
<td>$ 150</td>
</tr>
<tr>
<td>URSA RE</td>
<td>CEA</td>
<td>SEPT 2015</td>
<td>EQ - CALIFORNIA</td>
<td>INDEMNITY</td>
<td>$ 250</td>
</tr>
<tr>
<td>PENN UNION RE</td>
<td>AMTRAK</td>
<td>SEPT 2015</td>
<td>MULTI - PERIL incl. EQ - US</td>
<td>PARAMETRIC</td>
<td>$ 350</td>
</tr>
</tbody>
</table>

Where is the Supply?

- Most large (re)insurers are already in the cat bond space
  - Only a few new sponsors per year
- Direct writers will need to radically change reinsurance program
- Who takes the lead on uninsured or under-insured losses?
  - Government sponsored entities (TWIA, TCIP, MPUIA, Amtrak)
  - Traditional Reinsurers
  - Alternative Capital – World Bank

Source: Munich Re, Swiss Re
Where is the Supply (continued)?

- Are investors interested in other casualty lines?
  - Longer tail lines, adverse reserve development
  - Are there accepted models? Are there appropriate triggers?
  - Mortgage insurance
- Are Longevity Bonds attractive?
  - Defined Benefit transactions
    - Multi-billion dollar deals, very long dated

Will Investors Leave When Claims Happen?
- *doesn’t seem so based on past events*
Sector Outlook Negative

• Sector (fundamental) outlook negative since January 2014
  • Premium prices to fall further in 2016
  • Investment yields to remain close to historic lows
  • Increased M&A to have limited impact on abating supply-side competition

• Reinsurers’ ratings expected to remain resilient
  • Adequate profitability and strong capitalisation
  • Earnings decline within ranges that current ratings can tolerate
  • Small group of mono-line companies could be downgraded, moved to Neg. Outlook

What Could Lead to Downgrades?

• Deterioration in sector profitability, even if capital remains strong
  • Run-rate combined ratio stay closer to 100%
  • Return on equity dropped below 10%

• Catastrophic loss with interest rate spike
  • Catastrophic loss in excess of USD70bn coupled with a sudden spike in interest rates of 300bps or more
Related Research

Fitch research can be accessed via our website www.fitchratings.com

- Monte Carlo Reinsurance Rendez-Vous Roundup (21 September 2015)
- Global Reinsurance Guide 2016 (7 September 2015)
- 2016 Outlook: Global Reinsurance (3 September 2015)
- Latin American Reinsurance (27 August 2015)
- Global Reinsurers' Mid-Year 2015 Financial Results (25 August 2015)
- Asian Reinsurance Markets (21 August 2015)
- Bermuda (Re)insurers Financial Performance (27 July 2015)

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