Reinsurance Market Outlook

Growth capital from growing reinsurer capital

September 2014
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Executive Summary—Growth Capital from Growing Reinsurer Capital

Reinsurance buyers see the lowest cost of underwriting capital in a generation.

In the past year, reinsurers have taken significant steps to incorporate more of the USD59 billion of alternative capital that has entered the reinsurance industry into their offerings to cedents. The cost of reinsurance continued to decrease in nearly every line, driven not just by benign loss activity and record reinsurer capital of USD570 billion, but also by the abundance of new capital that is inclined to enter the business.

Low cost underwriting capital for catastrophe risks from reinsurers and alternative capital sources has opened the minds of many insurers that have constrained their coastal growth for the last generation.

Growth focused insurers realize that 72 percent of the U.S. population growth in the last generation occurred in ocean-bordering states (formerly the most reinsurance constrained market in the world). These insurers, however, remain cautious of the significant rate, form and other regulatory risks associated with growing in coastal regions. Reinsurers have an opportunity to provide growth capital while helping these insurers manage regulatory and other risks. With multiple year reinsurance placements on the rise, more sustainable plans to incorporate reinsurance capital into underwriting capital are plausible. The cost of reinsurance capital for catastrophe risks are now as low as one third to one half the cost of equity capital for insurers.

Low cost underwriting capital extends to nearly every line. Excellent reinsurance results for non-catastrophe business have driven far better renewal terms and the interest of alternative investment driven reinsurers have opened new categories of capital relief and earnings growth for insurers.

Note: This reinsurance market outlook report should be read in conjunction with our firm’s views on rate on line, capacity and retention changes for each cedent’s market. Our professionals are prepared to discuss variations from our market sector outlook that apply to individual programs due to established trading relationships, capacity needs, loss experience, exposure management, data quality, model fitness, expiring margins and other factors that may cause variations from our reinsurance market outlook.
Reinsurance Supply Evolution Continues

Reinsurer capital continued to increase in Q2 2014, ending the quarter up USD15 billion from Q1 to USD570 billion, and up USD30 billion, or 6 percent from year end 2013. Healthy retained earnings, aided by below average catastrophe losses, unrealized investment gains and a continued influx of non-traditional capital have all contributed to the growth in insurer and reinsurer capital.

Exhibit 1: Change in global reinsurer capital

The involvement of capital market investors in the reinsurance sector through non-equity participations continues to expand. This is confirmed by record levels of catastrophe bond issuance in the first half of 2014, exceeding the prior year period by almost 50 percent, as well as the exploration of alternative business models by hedge fund managers. The pricing effect of ongoing convergence is testing the ability of ‘traditional’ capacity providers to adapt to the changing market environment, with all four leading rating agencies now holding a negative outlook on the reinsurance sector.

Alternative capital flow to reinsurance market continues

Non-traditional market participation continues to increase with total capital at USD58.6 billion, an increase of more than 18 percent since year end 2013. While collateralized reinsurance and bonds saw the most significant increases from 2012 to 2013, all capital segments have seen strong increases to date in 2014 with collateralized industry loss warranty capacity up nearly 100 percent from USD1.8 billion to USD3.5 billion.

Exhibit 2: Bond and collateralized market development

Source: Aon Benfield Analytics

Source: Aon Benfield Securities, Inc.
Maintaining the average annual returns realized over the past five to ten years in the insurance-linked securities (ILS) market will be challenging without a major catastrophe loss or an increase in the overall level of risk ceded to the market. As spreads have continued tightening, interest payments to investors are lower than those received in prior years. Additionally, price increases in the secondary market will be muted relative to the previous periods since the ability for spreads to continue tightening to the same degree is reduced.

Despite the reductions seen in spread levels for insurance linked investments, we continue to see capital flowing into the sector as fixed income investors face similar situations in other markets caused by low interest rates. ILS spreads are still viewed as attractive relative to other fixed income benchmarks with the added benefit of being largely uncorrelated with the broader financial markets.

### Exhibit 3: Aon Benfield ILS indices

<table>
<thead>
<tr>
<th></th>
<th>Return for Annual Period Ended June 30</th>
<th>5 yr Avg Annual Return</th>
<th>10 yr Avg Annual Return</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Bond Bloomberg Ticker (AONCILS)</td>
<td>7.96%</td>
<td>12.14%</td>
<td>9.41%</td>
</tr>
<tr>
<td>BB-rated Bond Bloomberg Ticker (AONCBB)</td>
<td>5.22%</td>
<td>8.16%</td>
<td>7.82%</td>
</tr>
<tr>
<td>U.S. Hurricane Bond Bloomberg Ticker (AONCUSHU)</td>
<td>8.94%</td>
<td>13.19%</td>
<td>10.81%</td>
</tr>
<tr>
<td>U.S. Earthquake Bond Bloomberg Ticker (AONCUSEQ)</td>
<td>4.33%</td>
<td>6.89%</td>
<td>5.99%</td>
</tr>
<tr>
<td>Benchmarks</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3-5 Year U.S. Treasury Notes</td>
<td>1.75%</td>
<td>-0.61%</td>
<td>3.15%</td>
</tr>
<tr>
<td>3-5 Year BB US High Yield Index</td>
<td>10.11%</td>
<td>7.50%</td>
<td>11.21%</td>
</tr>
<tr>
<td>S&amp;P 500</td>
<td>22.04%</td>
<td>17.92%</td>
<td>16.34%</td>
</tr>
<tr>
<td>ABS 3-5 Year, Fixed Rate</td>
<td>3.91%</td>
<td>1.55%</td>
<td>7.28%</td>
</tr>
<tr>
<td>CMBS 3-5 Year, Fixed Rate</td>
<td>4.26%</td>
<td>4.73%</td>
<td>10.32%</td>
</tr>
</tbody>
</table>

*Note: The Aon Benfield ILS Indices are calculated by Thomson Reuters using month-end price data provided by Aon Benfield Securities.*
Oversupply becomes evident in valuation

For the Aon Benfield Aggregate set of reinsurers, the annualized return on equity for 1H 2014 is slightly above the 10.8 percent recorded over the full year 2013. Reinsurer capital, up 6 percent at June 30, 2014 since year end 2013, is almost 12 percent higher than a year ago, and has grown by more than USD230 billion, or 67 percent since 2008. Share repurchases are in line with mid-year 2013 at 1.2 percent of shareholders’ equity at the start of the year, with expectations for further repurchases in 2014 assuming no major catastrophe loss activity. The stock market valuation of reinsurers declined since year end 2013 from 1.1 to 1.0.

Exhibit 4: Aon Benfield Aggregate reinsurer capital, common net income ROE, share repurchase, and valuation

*1H 2014 has been annualized
Note: Common Net Income ROE, share repurchases and price/book charts relate to the Aon Benfield Aggregate group of companies
Source: Individual company reports, Aon Benfield Analytics
Second Quarter 2014 Catastrophe Bond Transaction Review

Overview
The 12-month period ending June 30, 2014 was groundbreaking for the ILS market. Momentum continued from the previous year as significant investor inflows continued pushing interest spreads to new lows and resulted in the highest issuance level in the market’s history. Annual catastrophe bond issuance reached USD9.4 billion (Exhibit 5), an increase of 41 percent over the prior year period.

For the 12-month period under review, the total volume of catastrophe bonds on risk reached an all-time high of USD22.4 billion (Exhibit 6), an increase of USD4.6 billion from the prior year period and an all-time record for the sector.

Interestingly, the average duration of catastrophe bonds has increased steadily over the past three semi-annual issuance periods. However, the main driver in the market expansion is the large amount of new issuance, secured by both new and repeat sponsors. As of June 30, 2014, a total of USD60.1 billion in catastrophe bonds has been issued since the market’s origin.

The record level of catastrophe bonds on risk highlights the recent expansion of the ILS market. Aon Benfield Securities forecasts that this market expansion will continue, as new issuance volumes are expected to outweigh maturities in the coming years.
Key market drivers

Supply and demand
Significant capital continued to flow into the ILS sector, with an estimated USD5 to 6 billion of new capital having entered the market over the 12 months to June 30, 2014. This brings total capital inflows to more than USD10 billion for the last two years. In the traditional reinsurance market, capital grew to USD570 billion by the end of the first quarter of 2014. The record reinsurer capital levels and continually building strength from the ILS market pushed traditional margins for some programs to levels not seen for a generation.

In the catastrophe bond market, interest spreads continued to decrease in the 12 months ending June 30, 2014. Building on the declines seen in 2013, sponsors benefitted from interest spread reductions of 20 percent or higher during the period under review. These spreads were achieved despite record issuance levels. Minimum interest spreads for select risks in the last 12 months are listed below:

<table>
<thead>
<tr>
<th>Covered Risk</th>
<th>Minimum Interest Spread</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. hurricane / multi-peril</td>
<td>2.75 percent</td>
</tr>
<tr>
<td>U.S. earthquake</td>
<td>2.00 percent</td>
</tr>
<tr>
<td>Europe windstorm</td>
<td>2.25 percent</td>
</tr>
<tr>
<td>Japan typhoon</td>
<td>2.00 percent</td>
</tr>
<tr>
<td>Japan earthquake</td>
<td>2.25 percent</td>
</tr>
<tr>
<td>Health</td>
<td>1.75 percent</td>
</tr>
</tbody>
</table>

Source: Aon Benfield Securities, Inc.

Enhanced coverage
The trend of enhanced coverage continued during the year ending June 30, 2014. Seventy percent of property catastrophe bonds utilized indemnity triggers, compared to 48 percent in the prior year. Indemnity coverage was not limited to the U.S. as sponsors in regions such as Australia, Europe, and Japan also secured such coverage.

Sponsors were able to secure coverage for longer risk periods, demonstrating investors’ demand for more issuer and comfort with the catastrophe bond market’s liquidity. Both Tradewynd Re Ltd. Series 2013-1 and Sanders Re Ltd. Series 2014-1 Class D, which included U.S. hurricane exposure, secured capacity for five years—the first time since 2007 that such capacity has been secured for U.S. hurricane. In addition, Vitality Re V Limited secured five years of coverage for health risk—up from four years in the prior issuance.

In the 12 months under review, investors showed a willingness to provide capacity for more complex coverages and certain non-modeled exposures. This is demonstrated by American Insurance Group’s Tradewynd Re Ltd and Great American Insurance Company’s Riverfront Re Ltd.

Benign loss activity
In the calendar year 2013, global catastrophes caused insured losses of USD45 billion—22 percent below the 10-year average of USD58 billion and the lowest since 2009. This trend continued into the first half of 2014, where insured losses were USD22 billion and down 19 percent from the 10-year average. As such, it’s not surprising that the year ending June 30, 2014 remained loss free for the catastrophe bond market.

Aon Benfield estimates that a USD100 billion, or greater, insured catastrophe event is required to meaningfully disrupt market pricing for any significant period of time.

Transaction review
Thirty-five transactions (including two with life and health exposures) closed during the year ending June 30, 2014. This represents an increase of 30 percent from the prior 12-month period, in which 27 issuances closed. U.S. exposures continue to be the main risk ceded to the catastrophe bond market, with 25 transactions in the past 12 months including such risks.

Notably 70 percent of property catastrophe bonds utilized indemnity triggers, with the remainder predominantly industry index based. The use of this trigger expanded more broadly over the last 12 months to include Australia, Europe, and Japan risks, in addition to the U.S.

The contribution to expected modeled loss from U.S. hurricane risk for new property catastrophe issuances increased from 56 percent for the year ending June 30, 2013 to 60 percent for the same period in 2014. U.S. earthquake and Europe windstorm risk each contributed 13 percent of modeled expected loss during the past 12 months. Japan perils contributed 10 percent to the modeled expected loss across four new issuances.

1 Impact Forecasting’s 1H 2014 Global Catastrophe Recap dated July 2014 and Annual Global Climate and Catastrophe Report
2 Aon Benfield’s Reinsurance Market Outlook—June and July 2014 Update
Reinsurance Demand Idle Despite Rate Decreases

Increased insurer capital and low insured catastrophe losses to date have resulted in stable demand year over year from insurers despite continued rate decreases in many global segments in recent major renewals. Insurer capital grew by 6 percent through Q2 now totaling approximately USD4.2 trillion globally.

Exhibit 8: Change in global insurer capital

![Chart showing change in global insurer capital from 2007 to Q2 2014.]

Source: Individual company reports, Aon Benfield Analytics

Along with rate reductions, cedents in various global regions have seen improvements in terms and conditions for 2014 reinsurance placements including improved reinstatement provisions, expanded hours clause, and broadened terrorism coverage.

Although overall demand remained relatively flat year over year, some cedents looked to secure new forms of capacity including reinstatement protection placements and aggregate protection or elected to use a portion of the savings from rate reductions to purchase to a higher level of protection. In many cases, some or all of this coverage was provided by capital markets capacity.

Rate changes in all segments saw smaller decreases than have been experienced in the market since 2011. In fact, commercial property actually declined in pricing by 2.0 percent compared to renewals in the prior first and second quarter. As experienced from 2011 to 2013, workers’ compensation continued to see the strongest increases, albeit at 3.6 percent for renewals in 2014 to date. The indices for all lines of business still remain below 2007 levels with the exception of workers’ compensation that fairs slightly more favorably to date in 2014 at 1.33 compared to 1.29.

Exhibit 9: U.S primary pricing trend

![Chart showing U.S primary pricing trend for various insurance lines.]

Source: Council of Insurance Agents & Brokers
Global Catastrophe Losses Still Below Average in 2014

As of September 1, global catastrophe insured loss activity remained below average when compared to the historical 10-year average (2004 to 2013). The USD27 billion in insured losses represent just 44 percent of the USD62 billion sustained on average since 2004, and if current trends persist, this could end up being the quietest year for insurers since 2009. Through the first nine months of 2014, severe thunderstorm remains the costliest across all perils for the year with the United States (USD9.1 billion) and Europe (USD2.6 billion) sustaining the most substantial losses.

Through the middle of Q3 2014, the costliest insured events include February snowstorms in Japan, May 18 to 23 severe weather in the U.S., and June hailstorms in Germany and France. Each event caused more than USD2.5 billion in insured losses. With totals subject to change as assessments of events remain ongoing, there have been at least seven billion-dollar insured loss events globally thus far in 2014.

Exhibit 10: Insured losses by peril (2014 USD)

As seen in the Exhibit 11, all regions of the globe have sustained below average insured losses in 2014. Given current trends, Europe and Asia are the only regions poised to match or exceed their 10-year average in 2014. While the U.S. has experienced fewer losses to this point, with the peak of the Atlantic Hurricane Season occurring during September, just one significant land-falling hurricane could quickly cause a spike in losses for the industry. As a recurring reminder, the U.S. remains in the midst of a record-setting stretch without a major hurricane landfall (Category 3+). Hurricane Wilma was the last such event, which struck Florida in October 2005.

Exhibit 11: 2014 YTD insured losses compared to annual losses by region (2014 USD)
Asia earthquakes highlight dearth of insurance penetration

As we approach the 10-year anniversary of the December 2004 earthquake and tsunami that devastated Southeast Asia and caused more than USD3.0 billion in insured damages, it serves as a reminder that earthquakes are an ever-present threat to the billions of people living on the continent. The threat can come directly from the primary effect of ground shaking or from associated secondary effects such as tsunami, landslides, or fires.

Four of the top ten largest earthquakes since 1900 have occurred since December 2004, of which three have occurred in Asia. These events include the magnitude-9.1 Sumatra Earthquake of December 2004, the magnitude-9.0 Tohoku Earthquake of March 2011, and the magnitude-8.6 Sumatra Earthquake of March 2005. Two of these quakes triggered tsunamis which resulted in even greater levels of casualties and structural destruction.

Even moderate earthquakes can have devastating effects in Asia, such as the magnitude-6.1 Ludian Earthquake that struck in August 2014 and impacted an estimated 1.09 million people in China. At least 617 people were killed and economic damages are estimated to reach well into the billions of dollars (USD). However, only a tiny fraction of these incurred damages will be insured.

Economic and insured losses from earthquakes in Asia fluctuate on an annual basis. Losses are dependent on various factors, with location ultimately playing the most notable role. In recent times, the two costliest earthquakes to the insurance industry were the tsunamiogenic tremors in Tohoku in 2011 and Sumatra in 2004. In both instances, the movement on the faults that generated the earthquakes had sufficient vertical displacements to trigger tsunamis that actually caused greater losses and damage than the earthquakes themselves. It is estimated that 92 percent of the victims of the Tohoku quake perished as a result of drowning in the subsequent tsunami rather than as a result of the ground shaking.

In 2013, earthquake economic losses in Asia were tallied at USD18.8 billion, which was a fraction of the USD212 billion in losses sustained in 2011 (almost entirely from the March 2011 Tohoku event).

Exhibit 12: Earthquake losses in Asia

Despite the high economic cost of damage from earthquakes, the percentages of those losses covered by insurance remain low. Analysis from the last 10 years (2004 to 2013) indicates that the average annual loss from earthquakes that were covered by insurance totaled just 4.5 percent; by comparison, damages caused by the tropical cyclone peril during the same period have a higher coverage rate of 12.5 percent. 2011 marked the peak year during this stretch, with 16.5 percent of economic damages from earthquakes covered by insurance. Japan has seen an increase in insurance penetration over time following previous large events, and at a rate higher than most other countries in Asia. Many countries in Asia are highly vulnerable to earthquakes due to their positions at the edges of tectonic plates yet very low levels of insurance penetration continue to be exhibited despite a continued frequency of costly earthquake events on the continent.
Two years that provide a clear example of minimal earthquake damages being insured in Asia came in 2006 and 2008. The percentages of losses covered by insurance were only 1.2 percent and 0.5 percent respectively, with the most economically damaging earthquake events being primarily concentrated in China and Indonesia—two countries with large rural populations and extremely low levels of insurance penetration.

Conversely, in 2004, 2007, and 2011, the percentages of losses covered by insurance were higher at 9.0 percent, 6.5 percent, and 16.5 percent respectively. The higher-than-average rate of insurance coverage in 2004 was driven by two separate events: the first was a temblor in Japan in October; the second was the Sumatran earthquake/tsunami in December. In 2007 and 2011, higher-than-average levels of insured losses were largely due to events occurring in Japan.


As seen in exhibit 13, it is clear that Japan has suffered far higher economic losses than either Indonesia or China. The percentage of earthquake losses covered by insurance in Japan is also more robust. During the most recent 10-year stretch (2004 to 2013) economic losses due to earthquakes in Japan totaled USD243 billion, of which, USD36 billion (or 14.9 percent) was covered by insurance. In Indonesia, the economic losses were USD7.0 billion, of which, USD97 million (or 1.4 percent) were covered. In China, economic losses totaled USD118 billion, but only USD1.0 billion were covered by insurance. This translates to less than 1 percent of the total.

Looking at earthquake events occurring in different parts of the world, the discrepancies in earthquake preparedness, building codes, and in insurance penetration can be striking. Beyond Japan, where building codes have improved following a series of mega-loss seismic events, construction throughout most of Asia remains quite poor. In countries such as China, Indonesia, and the Philippines, where seismic activity is also frequent, inadequately built homes and structures are substantially more susceptible to collapse. Combined with minimal insurance penetration, particularly in rural regions, this leads to heightened discrepancies between countries for preparedness for future earthquake events to occur.

Exhibit 14: Insurance penetration and significant earthquake events

Source: Impact Forecasting
Despite Japan being one of the top nations in Asia in terms of insurance penetration, it still lags well behind the United States and parts of Europe. In January 1994, the magnitude-6.7 Northridge Earthquake struck just north of Los Angeles and caused USD44 billion in damage. One year later in January 1995, a magnitude-6.8 earthquake struck Japan’s Kobe region and caused roughly USD103 billion in damage. However, even though the Northridge EQ caused less than half the Kobe EQ on an economic basis, the portion covered by insurers was strikingly different: USD15.3 billion (35 percent) versus USD3.1 billion (3 percent).

Moving forward, it is anticipated that the combination of general earthquake awareness, improved technology, new governmental building code regulations, and increased insurance availability and penetration across Asia should lead to more adequately prepared residents and governments to recover from future earthquake events.

Atlantic hurricane season forecast update

The August 2014 forecast update for the Atlantic hurricane season shows the three major prognosticators in fairly close agreement on the overall number of named storms and hurricanes. TSR, CSU, and NOAA each largely left their new forecasts unchanged from earlier projections. Each agency is expecting either below normal or near normal tropical cyclone activity in the basin for the duration of the season.

All three of the agencies performed extremely poorly in 2013 following a season that was marked by the unexpected prolonged arrival of very dry air in the mid-levels of the atmosphere that limited cyclogenesis in the basin. Prior to 2013, forecasts have proved more accurate for TSR, CSU, and NOAA as they generally have been in line with actual activity. The pending development of an El Niño is expected to translate to a less busy 2014 season given cooler sea surface temperatures and increased wind shear in the Atlantic Ocean’s Main Development Region. This should allow the below forecasts to come close to verifying.

Exhibit 15: 2014 Atlantic Hurricane Season Forecast Update

<table>
<thead>
<tr>
<th></th>
<th>Named Storms</th>
<th>Hurricanes</th>
<th>Major Hurricanes</th>
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</thead>
<tbody>
<tr>
<td>TSR (August 2014)</td>
<td></td>
<td></td>
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<tr>
<td>1950-2013 Average</td>
<td>11</td>
<td>6</td>
<td>3</td>
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<tr>
<td>2014 Forecast</td>
<td>12</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>Difference</td>
<td>+1.0</td>
<td>0</td>
<td>-1.0</td>
</tr>
<tr>
<td>CSU (August 2014)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1981-2010 Median</td>
<td>12.0</td>
<td>6.5</td>
<td>2.0</td>
</tr>
<tr>
<td>2014 Forecast</td>
<td>10</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Difference</td>
<td>-2.0</td>
<td>-2.5</td>
<td>-1.0</td>
</tr>
<tr>
<td>NOAA (August 2014)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1981-2010 Average</td>
<td>12</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>2014 Forecast</td>
<td>7-12</td>
<td>3-6</td>
<td>0-2</td>
</tr>
<tr>
<td>Difference</td>
<td>-2.5</td>
<td>-1.5</td>
<td>-2.0</td>
</tr>
</tbody>
</table>

Sources: Tropical Storm Risk (TSR), Colorado State University (CSU), NOAA
Rating Agency and Regulatory Update

Impact on reinsurance demand = slight increase
There are a number of rating agency and regulatory related topics that can influence reinsurance demand, which vary by the need for each ceding company.

Exhibit 16: Key rating agency and regulatory topics impact on reinsurance demand

<table>
<thead>
<tr>
<th>Topic</th>
<th>Impact</th>
<th>Commentary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rating Agency Capital Adequacy</td>
<td>Neutral</td>
<td>Capitalization remains strong. As a benchmark, we estimate U.S. Industry Aggregate capital position is redundant at the ‘AA’ level per S&amp;P’s Capital model and supportive of ‘A++’ capital per A.M. Best’s BCAR model. From 2012, capital adequacy improved USD46 billion as measured by S&amp;P Capital and USD12 billion per BCAR.</td>
</tr>
<tr>
<td>TRIPA Extension</td>
<td>Slight Increase</td>
<td>While Congress gets ready to debate TRIA Extension plans, both the Senate and House versions have the industry retaining more risk. If the retention trigger increases to USD500 million (up from USD100 million), rating agency scrutiny on small to midsize companies increases further. In addition, companies are evaluating their terrorism exposure from an ERM perspective.</td>
</tr>
<tr>
<td>Reserve Adequacy</td>
<td>Slight Increase</td>
<td>As companies record adverse loss development, they may consider either retroactive reinsurance to manage balance sheet volatility or lower retentions prospectively. Also as M&amp;A activity increases, demand for reinsurance is likely to increase in the near-term as acquirers look to reinsure the target’s balance sheet via adverse development covers.</td>
</tr>
<tr>
<td>Evolving Criteria</td>
<td>Slight Increase</td>
<td>A.M. Best is developing a new stochastic BCAR model, which is expected to evaluate capital adequacy at various confidence intervals. This may also influence PML metrics. Fitch has updated its capital model (Prism) for the U.S. and released a new model for EMEA. Moody’s is standardizing stress scenarios. While the intent of these developments is not to increase industry capital requirements, invariably there will be outliers who need to manage to new standards.</td>
</tr>
<tr>
<td>Regulatory Developments</td>
<td>Slight Increase</td>
<td>Globally, regulators are strengthening capital requirements. Some changes are directly from updated risk-based capital models or introducing stress testing requirements, while others indirectly impact capital needs such as requiring companies to obtain ratings. There will be pockets of increased demand largely driven by local regulatory changes.</td>
</tr>
</tbody>
</table>
Rating agencies move negative on the reinsurance sector; personal and commercial remain unchanged

<table>
<thead>
<tr>
<th>Sector</th>
<th>A.M. Best</th>
<th>Fitch</th>
<th>Moody’s</th>
<th>Standard &amp; Poor’s</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commercial</td>
<td>Negative</td>
<td>Stable</td>
<td>Stable</td>
<td>Stable</td>
</tr>
<tr>
<td>Personal</td>
<td>Stable</td>
<td>Stable</td>
<td>Stable</td>
<td>Stable</td>
</tr>
<tr>
<td>Reinsurance</td>
<td>Negative</td>
<td>Stable (ratings)</td>
<td>Negative</td>
<td>Negative</td>
</tr>
</tbody>
</table>

*Italics indicate change over the last 12 months.*

The rating agencies’ view of the reinsurance sector has changed dramatically over the last 12 months. A.M. Best, Moody’s, and Standard & Poor’s have revised their outlooks from “stable” to “negative” this past year. S&P has stated the main drivers of the revised outlook are increased competition, reduced demand, and to a certain extent various macroeconomic risks. They cite the dramatic change in the marketplace, driven by a combination of an oversupply of capital and slowing demand, as the most prominent risk that reinsurers are facing. A.M. Best indicated that ongoing market challenges will hinder positive rating movement, and will likely over time lead to negative rating pressure. Fitch maintains a stable outlook on reinsurance ratings due to strong capitalization and continued profitability, albeit pressured. However, Fitch assigned a negative outlook to the reinsurance sector in terms of market fundamentals, from concerns over current market conditions.

Industry outlooks for the personal and commercial lines sectors remain unchanged since last year, underscoring the stable rating environment. A.M. Best is still the lone agency that continues to view the commercial lines segment as negative, despite noting many positive factors that include both pricing improvement and strong capitalization. A.M. Best stated that while they expect the majority of commercial lines ratings to be affirmed over the next year, the negative outlook is driven by their view that downgrades will outpace upgrades in the segment. Concern over reserve levels is a main driver of downward rating pressure.

The personal lines outlook remains stable for all four rating agencies. This segment is projected to see an increase in premium volume, net income, and ultimately surplus through 2014, continuing the positive trend of the last two years. The favorable performance of the sector in 2013 benefited from stable auto results and a decrease in natural catastrophes.
Rating agency criteria continues to evolve
Rating agencies continually fine-tune rating criteria to address industry trends and anticipate emerging issues, while improving their analytical approach and increasing rating transparency. We summarize key criteria developments in 2014 and changes on the horizon.

A.M. Best developing a new stochastic BCAR model
A.M. Best is developing a new stochastic-based BCAR model. The model is currently in the development phase with parallel testing and calibration on 2013 financials expected to be completed later this year. The new model will include stochastic features for the risk of bond defaults, stock volatility, reinsurer default, pricing risk, and reserving risk. The stochastic BCAR model will calculate required capital and catastrophe risk charge at various confidence intervals. Analysis of stochastic BCAR results will focus on the confidence interval at which results fall below a minimum standard. With the stochastic BCAR model still in the development and testing phase, numerous aspects of the model need to be determined before A.M. Best releases a request for comment paper on the new model. Examples include confidence intervals by rating level, catastrophe PML charge, and stress tests.

A.M. Best introduces national scale ratings
In June 2014, A.M. Best issued draft criteria introducing national scale ratings. The objective is to provide a means of distinction in countries where ratings are tightly banded due to the inherent risks of writing business in a particular country (including the economic climate, political factors, financial system risk, and maturity of the insurance industry). The process would begin with an insurer first being assigned a global rating under the current ratings methodology. The global rating will then be mapped to a national scale rating that has been developed for a specific country and will be annotated with an “.xx” where the “.xx” is a two letter country code. If this new methodology facilitates additional insurers seeking an A.M. Best rating it could create a corresponding slight increase in reinsurance demand.

Fitch updates Prism models
In 2013, Fitch Ratings implemented an enhanced stochastic capital model, Prism 2.0, for US non-life insurers, after temporarily suspending the previous version in 2008. Prism 2.0 creates more severe stress assumptions ‘in the tail’ of the loss distribution and recognizes that certain balance sheet items can fluctuate. The model also includes a third-party natural catastrophe model. Fitch states that Prism is a key capital adequacy measure in their rating opinion along with leverage ratios and regulatory capital ratios.

After a three month public consultation in Q4 of 2013 and a beta-test through the first seven months this year, Fitch released their deterministic risk-based capital model called “Prism Factor-Based Capital Model (Prism FBM)” for use on EMEA insurers. The model will be used as the primary tool to assess an insurer’s capital strength and enable the agency to compare companies despite writing different business lines in different regions and using different accounting standards. The model was initially intended to be released to Asia Pacific simultaneously but has now been delayed until later in the year and will also be released in Latin America at that time.

The increased usage of Prism and the related capital benefit provided by reinsurance within the stochastic model has the potential to create a slight increase in reinsurance demand.

Moody’s to standardize stress testing
Moody’s indicated plans to standardize their approach to stress testing with a specific focus on the effect of shock events. Their approach is to examine insurers against a set of pre-defined stress scenarios to key risks, with a focus on near to medium term shock events. Moody’s focus is more on general shock events (e.g., 1-in-250 year event) and not necessarily repeats of historical actual events like the Financial Crisis or Hurricane Katrina. In Moody’s evaluation, if severe stress scenarios suggest a rating three or more notches below the current rating, the current rating may be lowered to reflect potential rating transition risk post event.
S&P Insurance Industry & Country Risk Assessments (IICRAs) vary by region
For the first time last year, Standard & Poor’s assigned IICRA to 97 insurance sectors worldwide and has extended the scope including 99 insurance sectors covering 53 countries and four global sectors. The most common IICRA assessment is “intermediate risk” and approximately 90 percent of the assessments range within one level (from “low risk” to “moderate risk”). In S&P’s view, six countries in EMEA are “high risk” and North America and APAC generally have more favorable IICRAs. Below is a brief rationale for the ratings in each region:

- **North America**: Relatively favourable IICRA assessments among North America largely stemming from moderate product risk, high barriers to entry and an effective institutional framework.
- **Latin America**: IICRA scores range from “very high” to “intermediate risk” partly due to low income levels measured by GDP per capital across the region. On the positive side, these IICRA scores are generally supported by fairly adequate regulatory frameworks, satisfactory industry profitability, relatively low product risk, high barriers to entry in most markets, and good growth prospects.
- **Asia Pacific**: Relatively low to moderate country risks across most of the region are supported by strong prospects for economic growth and adequate to strong legal and financial systems.
- **Western Europe**: IICRA assessments for Western European markets illustrate the divide between the weaker economies on the “periphery” of the Eurozone and the stronger core economies.
- **Central And Eastern Europe, the Middle East, and Africa**: Country risk is higher (mostly intermediate or moderate) in developing countries due to high banking and financial system risk.

Demotech defines second event requirements
Demotech is the rating agency that drives reinsurance buying decisions for most Florida homeowners specialists. In addition to standard annual and quarterly financial reviews, Demotech conducts a specific review related to a company’s reinsurance program through analysis of their “Exhibit A” filing, which was due June 1, 2014 and requires companies to disclose gross and net catastrophe losses at various return periods and under three different modeling assumptions. In 2014, Demotech issued revised criteria defining their second event requirements. Demotech requires companies to purchase reinsurance protection up to at least the 100 year long-term basis including demand surge / loss amplification and expects the reinsurance program to support a 1 in 50 year second event. Additionally, given the favorable pricing environment for cedents, many homeowners specialists in Florida purchased additional coverage.

Regulatory developments on the horizon

China’s new solvency capital requirements look to optimize capital
The China Risk Oriented Solvency System (C-ROSS) may be the most important new regulatory change taking place. Similar to European Solvency II, C-ROSS has three supervisory pillars -- quantitative capital requirements, qualitative supervisory requirements, and market discipline mechanism.

Compared with the expiring solvency capital requirement which only considers an insurer’s size (volume of net premium or claims paid) C-ROSS now takes into consideration comprehensive risks. The main features of non-life C-ROSS Pillar 1 are summarized as below:

- The available capital of an insurer is classified into different tiers, with the standards set out for each different tier of capital
- The minimum capital requirements include: insurance risk, market risk, credit risk, control risk, and macro-prudential risks
- Dynamic solvency requires insurers to develop projection and evaluation of their solvency position for a given period of time under a base scenario and various adverse scenarios
- For insurance risk capital calculation, non-life insurers’ business is classified into eight lines; under the expiring solvency requirements no classification exists

- Catastrophe risk capital requirements are introduced, as part of insurance risk capital requirements. Risk factors are assigned at province level, and 10,000 scenarios are developed for each peril (earthquake and typhoon)

- For credit risk charge, risk factors for reinsurance assets associated with on-shore reinsurers are significantly lower than those with off-shore reinsurers

The China Insurance Regulatory Commission (CIRC) commented that C-ROSS is expected to push non-life insurers to optimize their business structure, adjust their investment portfolio and reinsurance counterparties. CIRC has made it clear that C-ROSS is not meant to increase capital pressure on the insurers. Instead, it is introduced mainly to better reflect the risks insurers face. Per CIRC, the first-round industry-wide testing does not show material impact to the industry’s aggregate solvency level and the industry as a whole does not face mounted capital pressure. However, due to the significant difference between insurance risk factors of different lines, the capital impacts on individual insurers vary. Unless the risk factors specified in the July version C-ROSS change materially, large insurers with big motor book generally should be able to release substantial amounts of capital as opposed to the current level, while those who do not have big motor book and those who focus on their major institutional shareholders’ business might face increased capital pressure.

**Europe, the Middle East and Africa**

In Europe, after years of various delays, the legislation underpinning Solvency II - Omnibus II - was passed by the EU parliament on March 11, 2014. The passage brings Solvency II into force beginning January 1, 2016. In the Middle East and North Africa, the insurance industry continued growing rapidly and new regulations were introduced and existing ones strengthened to improve market stability, transparency and policyholder security. South Africa continues its progress on the Solvency Assessment and Management (SAM) framework, a risk-based solvency regime that is similar to, and starting at the same time, as Solvency II.

An interesting aspect to each of the advanced risk based capital (RBC) measures being implemented in the region relates to credit risk of counter-party reinsurers. Risk charges for credit risk on reinsurance recoverables are based on ratings from global rating agencies, and in large parts of the Middle East and Africa, relatively few insurers are rated. With increasing capital requirements, companies will be more sensitive to any additional capital they will have to hold, and seek ways to minimize this. As insurance regulatory standards improve and advanced RBC models flourish, the role and importance of rating agencies in the region is expected to increase as well.

**Japan**

Japan’s Financial Services Agency (FSA) has decided to conduct field tests covering all insurance companies, with the aim of introducing economic value-based solvency regime. The field tests include trial calculations of the economic value of insurance liabilities to comprehend how insurance companies are dealing with the calculation of insurance liabilities on an economic value basis. Findings obtained in the tests, including any practical issues, will be taken into consideration for the introduction of the economic value-based solvency regime. After the reports are collected and put together, a summary of the tests (including general tendencies and any issues identified in the process) is expected to be made public in May 2015.

In 2014, the Japanese insurance industry made progress in the introduction of Own Risk Solvency Assessment (ORSA) and trial ORSA report submission. In response to the recent global regulatory movement, the FSA revised its Comprehensive Guidelines for Supervision of Insurance Companies in February 2014 to fit guidelines on ERM that include ORSA. The new main topics regarding ERM included in the revised Guidelines are risk identification and risk profile, risk measurement, risk management policy, ORSA, group-based ERM, and reporting. Under the ORSA section of the revised guidelines, the FSA supervises insurance companies whether they:

- Evaluate quality and adequacy of capital considering all significant risks which are reasonably predictable and relevant
- Re-assess their risk and solvency when their risk profiles change significantly
- Adequately consider mid-term (e.g., 3 to 5 years) business strategy, especially new business plans, when doing ORSA
- Conduct overall evaluation, by internal or external people, of the effectiveness of their ORSA
• Have internal audit functions independently review the effectiveness of ERM and ORSA, and provide recommendations to management where necessary

Latin America
According to a recent A.M. Best report, in 2013 the Latin America region represented 8.5 percent and 3.7 percent of worldwide GDP and insurance market respectively. Among the Latin America countries, the top six: Argentina, Brazil, Chile, Colombia, Mexico, and Venezuela accounted for 92 percent of the whole region’s total premium.

The Latin America market has grown in recent years and key factors attributable to the growth include:

• Economic growth in the region significantly reduced the level of extreme poverty in many Latin America countries, which stimulated growing needs for infrastructure, transportation and services and directly transferred into growing demand in insurance products

• Relative low catastrophe exposures in the past several years created an ideal source of diversification both in terms of underwriting and profitability for insurers

Penetration rates for insurance remain low. Among the top six insurance premium generating countries, only Argentina has a non-life insurance penetration rate above 2.0 percent (at 2.4 percent). For comparison purposes, non-life insurance penetration in the U.S. is approximately 3.0 percent.

For insurers eager to enter and expand in the region, economic stability remains a challenge. In addition, each country has unique and specific regulatory requirements. Examples include:

• Minimum rating requirements for some insurance companies
• Requirements for use of local reinsurers
• Minimum rating requirements for reinsurers
• Investment requirements in local economy
• Minimum investment liquidity
• Requirement to change independent actuary and auditor on a routine basis

The National Association of Insurance Commissioners (NAIC) includes catastrophe risk charge in RBC
The NAIC has proposed a change to the RBC model to add catastrophe risk charges for hurricane and earthquake perils. This was included on an informational basis for year-end 2013. As the proposal currently stands, the risk charge will be based on separate 1-in-100 year modeled loss for hurricane and earthquake events. The charge will be net of reinsurance and adds a 10 percent credit risk charge for the ceded losses to consider the risk of uncollectible or disputed reinsurance.

The 10 percent credit risk charge is considered a placeholder as discussions are ongoing about an appropriate factor. The targeted implementation date approximately 2015 after the Subgroup has examined the reported catastrophe loss data and its effect on RBC. While fillings will be informational only at least until the 2014 reporting year, we would expect a slight increase in reinsurance demand for entities that are not previously subject to rating agency catastrophe management considerations once the proposal is finalized.

U.S. ORSA requirements quickly approaching
The NAIC’s Risk Management and ORSA Model Act’s effective date of January 1, 2015 is rapidly approaching. ORSA filing requirements are only required for a single company with gross premiums written greater than USD500 million or a group with gross premiums written greater than USD1 billion. Companies domiciled in states that passed legislation adopting the NAIC’s model act should be actively conducting their ORSA in preparation for filing the required annual summary report sometime during 2016.

Based on information obtained from several state insurance departments, NAIC and feedback from our clients, states with enacted ORSA law generally are taking a cooperative approach with insurers on setting the filing deadline.

ORSA is intended to provide a more integrated view on company’s ERM, risk assessment including stress testing of key risk exposures, and prospective solvency assessment on the group level. Regulators should be able to utilize ORSA reports to more accurately determine the scope, depth and minimum timing of risk-focused financial analysis and examination.
M&A Activity Update—Increasing Focus

Merger and acquisition (M&A) activity in the global insurance and reinsurance market continued to rebound in 2014. According to Capital IQ, global insurance sector M&A deal volume through the first seven months of 2014 totaled USD17.9 billion\(^1\) with 383 deals, compared to USD13.8 billion and 350 deals for the same period of 2013, a deal value increase of almost 30 percent.

The recent increase in M&A activity was driven by the acquirers’ desire to expand (i) geographically (e.g. ACE / Itaú Seguros, Starr / Dazhong Insurance), or (ii) into new products or distribution (e.g. Validus / Western World, Desjardins / State Farm Canada). We believe that this acquisition motivation will continue to be supplemented by sellers becoming increasingly focused in divesting books of business that do not earn its cost of capital.

A summary of the current market trends affecting capital raising and M&A activity follows:

- **Reinsurer and insurer stock price performance has slowed compared to last year.** As summarized in the ABS Weekly Public Market Recap\(^4\), most global reinsurers’ and insurers’ stock price appreciation has slowed significantly compared to the robust growth experienced last year. On average, the YTD stock price change has been close to neutral for the major P&C reinsurance and insurance indices.

- **The resulting tangible book value multiples remain at the pre-crisis levels reached last year.** For many reinsurers and insurers, especially specialty commercial (1.43x)\(^5\) and personal line insurers (2.00x)\(^5\), the pre-crisis TBV multiples achieved last year have been maintained.

- **Increasing pressure on underlying organic results will drive additional M&A.** Whether the pressure on earnings and returns is from new alternative market capacity or from traditional challenges (e.g. low interest rates, reduced favorable reserve development), the need for improved capital utilization and operational efficiencies will increasingly stimulate buyers’ interest.

- **Continued interest exists in specialty managing general underwriters (MGUs), wholesalers and fee for service providers.** Both strategic and private equity investors continue to demonstrate interest in acquiring distribution sources and services providers, including third party capital managers and less capital intensive underwriters (e.g. KKR / Sedgwick Claims Management and TPG / The Warranty Group).

- **Hedge funds continue to develop permanent capital vehicles.** Hedge funds continue to establish off-shore reinsurers. These vehicles provide the hedge fund with a permanent asset base and fund investors with a more tax efficient investment vehicle along with the potential for greater future liquidity.

Over the near term, Aon Benfield Securities expects strategic investors to pursue consolidation in a focused “bolt-on” approach expanding into new geographies or products via acquisitions of underwriting teams or specialty units. Over the medium to longer-term, however, we expect the need to grow and improve returns via traditional whole-company M&A will intensify.

\(^1\) Based on publicly disclosed deal values in the global insurance brokerage, multiline, property and casualty and reinsurance subsectors.

\(^4\) Aon Benfield Securities Weekly Public Market Recap is prepared and distributed to Aon Benfield clients each week. Please call your Aon Benfield representative to be added to the distribution list.

\(^5\) Price to 6/30 Tangible Book Value multiple as of August 22, 2014.
Economic and Financial Market Update

The global economy
Economic growth in the first half of 2014 was somewhat below expectations, with a slowdown in the first quarter prompted by weakness in the United States where severe winter weather hit production and demand, and lower growth from emerging markets, notably China, Brazil and Russia. Domestic demand moderated in China as the authorities continued to rein in credit growth, and geopolitical tensions caused a contraction in demand in Russia. Weaker than expected external growth, especially from the United States and China, dampened growth in other emerging markets. The outlook for the second half of 2014 is more positive, with recovery expected as some of the short-lived earlier factors work out, such as the effects of adverse weather, coupled with the persistence of low inflation and accommodative monetary policy in most advanced economies.

Seasonally adjusted GDP remained stable in the euro area during the second quarter of 2014, compared with a 0.2 percent rise the first quarter. In the second quarter of 2014, GDP was 0.7 percent higher than the second quarter of 2013. Economic difficulties persisted in a number of core regions, with quarter-on-quarter contraction in Germany (down 0.2 percent) and Italy (down 0.2 percent) and zero growth in France. In contrast, GDP in the United Kingdom increased 0.8 percent quarter-on-quarter. Economists and commentators believe the European Central Bank will be forced to take aggressive action to boost growth and halt a slide towards deflation.

In its July 2014 update, the IMF lowered its global growth projection for 2014 by 0.3 percent to 3.4 percent, but kept its projection for growth in 2015 unchanged at 4.0 percent. Projected growth in emerging and developing economies continues to outstrip that of the advanced economies. Nevertheless, downside risks are a continuing concern, heightened by growing geopolitical tensions in Russia and Ukraine, potentially exacerbated by spiraling sanctions, and the prospect of an oil price spike caused by the escalating situation in the Middle East.

Exhibit 17: GDP projections

<table>
<thead>
<tr>
<th>Percent</th>
<th>2012</th>
<th>2013</th>
<th>2014p</th>
<th>2015p</th>
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<td>3.4</td>
<td>4.0</td>
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<td>1.3</td>
<td>1.8</td>
<td>2.4</td>
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<tr>
<td>Euro area</td>
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<td>-0.4</td>
<td>1.1</td>
<td>1.5</td>
</tr>
<tr>
<td>France</td>
<td>0.3</td>
<td>0.3</td>
<td>0.7</td>
<td>1.4</td>
</tr>
<tr>
<td>Germany</td>
<td>0.9</td>
<td>0.5</td>
<td>1.9</td>
<td>1.7</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>0.3</td>
<td>1.7</td>
<td>3.2</td>
<td>2.7</td>
</tr>
<tr>
<td>United States</td>
<td>2.8</td>
<td>1.9</td>
<td>1.7</td>
<td>3.0</td>
</tr>
<tr>
<td>Japan</td>
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<td>1.5</td>
<td>1.6</td>
<td>1.1</td>
</tr>
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<td>Emerging Market and Developing Economies</td>
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<td>Emerging and Developing Europe</td>
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<td>China</td>
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<td>7.7</td>
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<td>Latin America and the Caribbean</td>
<td>2.9</td>
<td>2.6</td>
<td>2.0</td>
<td>2.6</td>
</tr>
</tbody>
</table>

Source: IMF World Economic Outlook

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6 Eurostat news release, August 14, 2014
7 IMF World Economic Outlook Update, July 2014
The EU debt crisis
Concerns over the peripheral European sovereign debt crisis continued to recede during the first half of 2014 with the emergence of more positive economic indicators and as financial markets gained further confidence in the political will to manage through the eurozone’s problems. Yields on government debt have drifted lower in the year to date, and are now all below the 7 percent level which was a previous trigger for intervention by the European Central Bank. The yield on German 10-year government bonds is currently at an all-time low, dipping briefly below 1.0 percent.

Financial markets
Governments around the world have targeted low interest rates and expansive monetary policy as key measures to stimulate economic recovery. The key U.S. Federal Funds Rate has been kept at a record low of 0.25 percent since December 2008 and the U.K. Bank Rate has been at 0.5 percent since March 2009. In response to concerns over disinflation and to promote sustainable growth, the European Central Bank (ECB) lowered its benchmark Main Financing Rate by another 0.1 percentage point to 0.15 percent on June 2, 2014. To maintain the rate differential the ECB took the unusual step of introducing a negative interest rate on its deposit facility, lowering the interest rate on overnight deposits with the bank from zero to negative 0.1 percent.

Exhibit 18: Eurozone 10-year government bond yields

Exhibit 19: Five-year government bond yields

Source: Bloomberg (data as of August 12, 2014).
* Ireland is 5-year

Source: Aon Benfield Analytics, Bloomberg
After a jump in mid-2013, the yield on five-year Eurozone government debt has drifted down during 2014 to date, falling to 0.19 percent at mid-August in response to the release of weak economic data. The yield on U.K. government bonds has traded in a range of 1.7 percent to 2.0 percent, reaching 1.74 percent at mid-August while U.S. Treasuries have been steady in a range of 1.5 percent to 1.7 percent, dropping to 1.54 percent at the end of the period. The yield on Japanese bonds started the year at 0.25 percent, falling gradually to 0.15 percent at mid-August.

Investors’ credit risk appetite continued to grow through 2014 as spreads over Treasuries/government bonds tightened further, and insurers and reinsurers have increased their allocation to this class in the face of very low yields on government securities. The spread of US AA rated issues fell to just 0.07 percentage points over Treasuries at mid-August, having dipped below that of Treasuries on several days. Spreads on lower rated issues from Europe and the US continued to trend down.

Exhibit 20: Five-year corporate bond spreads over government debt

Exhibit 21: Equity markets index (January 2006 = 100)

Equity markets made a generally strong start to 2014 with most major indices rising through the first half, although recent geopolitical tensions have caused some correction. At mid-August, the S&P 500 index was up 6.2 percent since the start of the year and the MSCI World index rose 3.6 percent. Stock markets in Europe (Eurotop 100) and the U.K. (FTSE 100) showed a mixed performance over the period, ending up 0.5 percent and down 0.9 percent, respectively. Japan’s Nikkei index was the exception to the broader picture, exhibiting greater volatility and ending the period down 5.3 percent.
Analysis of the 20 largest banks globally shows that total asset leverage, measured by total assets to shareholders’ equity, continues to decline. Since year end 2013, ratios have declined steadily to 19.4 from 18.6. Implementation of the leverage ratio requirement began in January 2013 and any final adjustments to the definition and calibration of the leverage ratio will be made by 2017, with a view to migrating to a Pillar 1 treatment on January 1, 2018 based on appropriate review and calibration.

As of April 2014, Basel II has been adopted by 27 of the 28 Basel Committee member jurisdictions, with Russia expected to make final strides towards adoption yet in 2014. Basel 2.5 has been adopted by 24, and Basel III has been adopted by 20 with varying decrees of progress in rulemaking for the remaining countries that have not adopted the various levels. These compare with totals of 24, 22, and 11, respectively as of August 2013.

### Exhibit 22: Top 20 largest banks total leverage

<table>
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<tr>
<th>Name</th>
<th>6/30/08</th>
<th>9/30/08</th>
<th>12/31/08</th>
<th>12/31/09</th>
<th>12/31/10</th>
<th>12/31/11</th>
<th>12/31/12</th>
<th>12/31/13</th>
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<tr>
<td>Industrial &amp; Commercial Bank of China Ltd</td>
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<td>16.1</td>
<td>16.2</td>
<td>17.5</td>
<td>16.4</td>
<td>16.2</td>
<td>15.6</td>
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<td>27.0</td>
<td>18.8</td>
<td>16.9</td>
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<td>15.6</td>
<td>14.9</td>
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<td>14.5</td>
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<td>45.2</td>
<td>48.6</td>
<td>33.5</td>
<td>30.0</td>
<td>28.9</td>
<td>24.4</td>
<td>22.2</td>
<td>20.9</td>
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<td>China Construction Bank Corp</td>
<td>15.3</td>
<td>15.3</td>
<td>16.2</td>
<td>17.3</td>
<td>15.5</td>
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<td>Mitsubishi UFJ Financial Group Inc</td>
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<td>29.2</td>
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<td>20.3</td>
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<td>JPMorgan Chase &amp; Co</td>
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<td>16.1</td>
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Source: IMF World Economic Outlook
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