Segment Review
September 5, 2016

Innovation: The Race to Remain Relevant

A paradigm shift is underway as reinsurers find their pace in the race to innovate and mine "Big Data" in an increasingly connected world.

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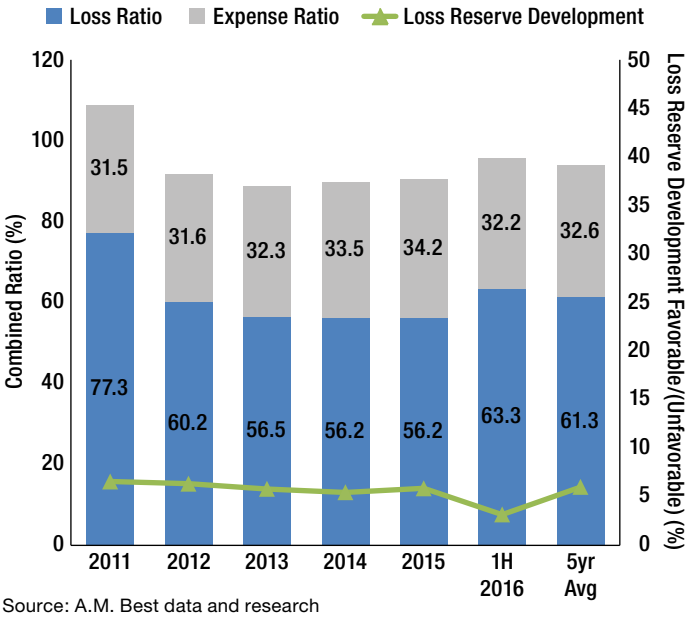
"There are two kinds of companies, those that work to try to charge more and those that work to charge less. We will be the second," Jeff Bezos, founder and CEO of Amazon.com, is quoted as saying. Now, certainly, there is room for both types of companies in any given market, but Amazon.com has changed the market dynamics in the retail sector over its relatively short existence. In reinsurance, capital market capacity is clearly pressuring the reinsurance sector to work to charge less. When we start to apply this thinking to the long-term landscape of the (re)insurance industry, we see a rather prolonged period where further consolidation will be the result, as every company can't successfully compete strictly on price.

Exhibit 1
Global Market – Combined Ratio Components

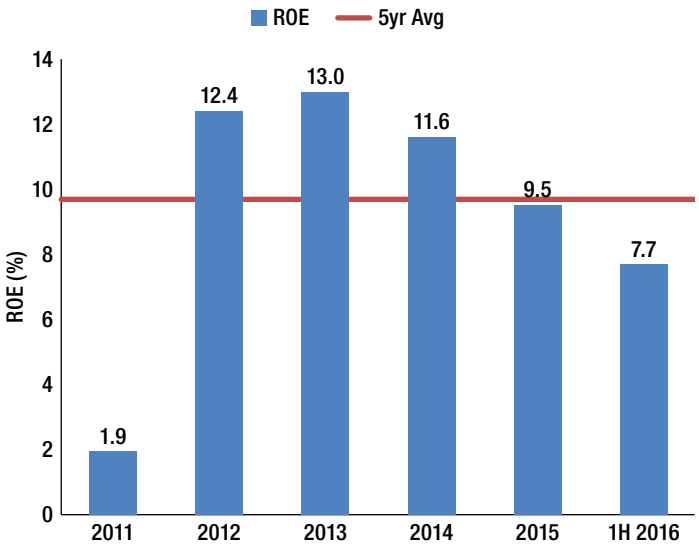


Source: A.M. Best data and research

We have all observed that global reinsurers are dealing with compressed profit margins, with the pressure on reinsurance pricing, terms, and conditions fueled by more than ample capacity in the market and low catastrophe loss activity, in particular, in the United States. Certainly, recent events such as the Fort McMurray wildfire in Canada, the Kumamoto earthquake in Japan, Texas hail storms, and massive flooding in France serve as reminders that risk is no less prevalent. While the USD 30 billion in insured losses globally through the first half of 2016 has tempered the favorable catastrophe loss trend, the reinsured portion of these losses is still well within annual reinsurers' catastrophe budgets and, as a result, reported operating performance remains buoyant despite the current severe market pressures (**Exhibits 1 and 2**).

The reinsurance market also continues to deal with the tag-team of low investment yields and continued pressure from alternative capital. The dearth of opportunities to enhance results with investment income due to the persisting low interest rate environment remains an issue for primary and reinsurance companies alike. Management teams have reiterated intentions to remain disciplined and reduce books of business if necessary in order to achieve desired results. Due to the hyper-competition for reinsurance opportunities, limited in number by the strong balance sheets of primary insurers, risk portfolios of global reinsurers have begun to shift in terms of business mix. This underlying trend began several years back, when reinsurers, in an effort to better cycle manage their risk portfolio, looked for opportunities to grow in specialty insurance. Pricing for this business is proving to be little more attractive than on the reinsurance side, although increased pressure is mounting in this sector as well, rendering some specialty classes as less than "special". Over the recent term, property, marine, energy, and aviation pricing pressures have become more acute, even on the primary side. It remains to be seen how meaningful,

Exhibit 2
Global Market – Return on Equity (ROE)



Source: A.M. Best data and research

if at all, the impact of catastrophe losses suffered during the first half and extending throughout the balance of the year, will be on both the primary and reinsurance markets for these classes. The inflow of capital from the Insurance-Linked Securities (ILS) market and other collateralized forms of reinsurance, especially for U.S. catastrophe-exposed business, continue to contribute to the competitiveness of the market and post-event will likely dampen any potential for lift.

This has led global reinsurers to further their quest for innovation through the development of new, more creative strategies, or when all else fails, pulling an old strategy from the tattered playbook of "How to Cycle Manage When Times Get Rough". As we have stated previously, the supply of capacity for most good opportunities usually starts as a trickle, followed by a flood, which only serves to dampen the longer-term potential of any given opportunity. It is extremely difficult to build a better mouse trap, but that should not hinder the search for niche businesses or strategies that are difficult to replicate and, therefore, prove more stable over time. It appears that in the years ahead, lines of business will become more dissected as companies apply more resources to gain an edge. Within the (re)insurance industry there are professionals assessing risk with a broad array of backgrounds, including; engineers, meteorologists, analysts, actuaries, etc. However, as social media and connected devices continue to be woven into the fabric of society, therein lie an enormous amount of data and information in which the (re)insurance industry can make decisions and underwrite business. Whether it is data obtained from interconnected devices, photo imagery from drones, or user-generated data on social media platforms, the data is not necessarily in a clean format that is easily accessible, so it appears that (re)insurance companies should consider building teams of people that write code in order to harness "Big Data". A paradigm shift is taking place.

Over the past few years, reinsurers have made a number of strategic moves to position their organizations for long-term survival. Merger and acquisition activity is by far the most significant of these, with each deal having its own specific stated objective for a given organization. Most transactions can be characterized as attempts to build scale, product, and distribution capability, while improving operating and capital efficiency. It is not yet clear if all these objectives have been fully realized for the recently merged organizations. What is evident is that the acquired entities, which, by and large, were focused on U.S. property catastrophe reinsurance, are better off as part of a larger, more broadly diversified organization. While these transactions have done little to alleviate the excess capacity that exists in the market, they have provided the respective organizations greater flexibility in deploying capacity across a broader spectrum of opportunities globally. The broader product and distribution capability should also be a significant advantage in attracting capital market capacity as money managers seek to expand their horizons beyond property catastrophe risk.

In this regard, reinsurers increasingly seem to be viewing capital market capacity as an opportunity as opposed to a threat. Reinsurers are increasingly utilizing retrocessional capacity in various forms as a cycle management tool. Over the past few years, new sidecar facilities have been created or existing ones increased. Despite a progressive deterioration

in pricing, terms, and conditions, capital market capacity has continued to be attracted to the reinsurance sector and underwriters that have the market knowledge and distribution capability to assess risk are benefiting. The capability to transfer risk to capital market facilities in exchange for fees and profit sharing is a desirable alternative to have available for clients when risk-adjusted pricing prohibits the use of traditional on balance sheet capacity. This is a trend that is expected to continue and expand beyond property classes. The formation of alternative asset vehicles such as Watford Re, ABR Re, and Harrington Re are examples of where investors have become comfortable with a longer-term commitment of capital in exchange for narrower (re)insurance margins, enhanced with potential for stronger investment returns. There also seems to be a heightened awareness on the part of reinsurers, brokers, and capital market participants alike, as to the value in getting closer to the risk/client. Reinsurers are well ahead on this front, generally through their insurance silos, which operate separate and distinct from reinsurance operations.

More recently, providing capacity to MGA and MGU facilities is on the rise as capacity providers look for stable sources of business. There have been a number of strategic acquisitions or investments in MGAs by reinsurance companies and capital market facilities seeking to strengthen their distribution channel as traditional access to business continues to contract. Direct ownership of a distribution source serves the dual purpose of stabilizing the flow of business and reducing acquisition costs, while providing the insured client with a competitively priced product. Owning the MGA as opposed to just providing the capacity has the added benefit of greater ability in maintaining quality underwriting standards. History is littered with examples of losses resulting when the underwriting pen is given to an MGA without adequate alignment of interests. The ability to control and monitor underwriting activity in these relationships is paramount and should not be diluted in the pursuit of preserving the top line. There is a balance here though. While getting closer to the client via primary operations or owning an MGA helps to wring out some expenses from the overall equation, there is also more regulation when dealing directly with the consumer. Reinsurance operations have a greater amount of flexibility regarding regulation. Flexibility can aid nimbleness. Organizations have to consider the challenges and potential tradeoffs. Being bigger doesn't automatically translate into being better, and managing large workforces requires a certain type of leadership. To quote Elon Musk, CEO of SpaceX and Tesla Motors, *"The problem is that at a lot of big companies, process becomes a substitute for thinking. You're encouraged to behave like a little gear in a complex machine. Frankly, it allows you to keep the people who aren't that smart, who aren't that creative."* This can certainly happen in the insurance industry if the pen is given away, if models are blindly relied upon, and critical thinkers are dismissed as operating too far outside the box.

Size, scale, and financial strength, all components of being relevant, benefit top tier reinsurers in gaining preferential or exclusive terms on select programs. Over the past year, there have been a number of high profile transactions that exemplify the importance of being relevant. AIG's placement of a two-year casualty quota share agreement with Swiss Re is an example where these attributes played a pivotal role in winning a big deal. Most important, however, is competency in the ability to structure these transactions so that they achieve the intended economics for both parties. What looks like a big win on the surface can prove to be very painful years after a deal is signed if assumptions fail to be achieved. So, being big can be a benefit if that advantage is used prudently in the face of a challenging market.

Trans Re certainly made a big splash by landing an exclusive agreement to become the underwriting manager for broker-sourced business on behalf of Berkshire Hathaway's General Re. One might be inclined to describe this deal as unfathomable. All business placed will be shared by both parties on equal terms. Trans Re gains the immense benefit of Gen Re's highly

rated balance sheet and scale, while Gen Re efficiently opens its balance sheet capacity to new opportunities that it otherwise may never see. While this agreement potentially brings greater capacity to the market at a less than opportune time, the capacity remains in the capable hands of two very disciplined underwriters who hold absolute underwriting profit as their mantra.

There is also a push for innovation and trying to find ways to close the protection gap. Reinsurers appear to be leading the initiative to penetrate uninsured and underinsured exposures such as flood, cyber, and terror by working with government and taxpayer-backed pools to find risk transfer solutions to alleviate the post-loss burden on society. This is an area where ideas are plentiful but progress is slow. It remains a huge frontier with great potential and may be the ultimate solution to the excess capacity problem, providing for greater strategic alliances between traditional and capital market capacity.

For some organizations, prudence continues to be a limiting factor preventing them from embarking on what they perceive to be excessively risky strategies where downside risk outweighs any potential return. For these more traditional organizations, share buybacks and dividends continue to be the primary tool for capital management. There is nothing wrong with these more traditional, time-tested plays. The risk, however, is being outmaneuvered by the competition, rendering an organization as less relevant to the market. Even worse is being not outmaneuvered but completely disrupted by a company outside the reinsurance industry. This is perhaps the greatest downside risk of all.

The reality is capital market capacity has triggered structural changes in the market. The trend started as a trickle but now is creating enough of an impact on the property catastrophe market that it is displacing capacity to other lines of business, distribution sources, and geographies. A.M. Best has very broad coverage of the global insurance market and we have been seeing company names appear on reinsurance programs for the first time in atypical geographies. The market has passed the inflection point and this trend will likely continue. While there will be winners and losers among the players and investors, with more capital in the (re)insurance market, the ultimate winner should be the insured client as this drives down the cost of insurance, keeping with the theme of working harder to charge less. Through that lens, this all seems positive. But it is the long-term value proposition that really matters for all parties involved and that outcome is still very unclear.

Top 50 Commentary

This year's analysis of the Top 50 reinsurers confirms some of the common industry themes. With robust capacity, the market remains competitive, and given the continued low investment yields, underwriting discipline continues to be critical. While some of the Top 50 have grown organically, others have grown through acquisition (**Exhibit 3**). The market leaders continue to dominate the market, with the Top 10 reinsurers of 2015 remaining in the top quintile of the 2016 rankings, and writing over 70% of the total life and non-life unaffiliated gross reinsurance premiums written (**Exhibit 4**). For purposes of this ranking, A.M. Best uses the foreign exchange rate that coincided with the date of the financial statements, which is typically December 31, 2015. As in prior reports, besides our discussion of changes in the ranking and revenue growth, we also include commentary based on a company's original currency.

Overall, the year-over-year declines in premium have accelerated. In 2015, total life and non-life gross premiums declined 1.5% year-over-year, versus less than a 0.5% decline in the prior year. The decrease in premiums is attributable to discipline among many players in the market, but also the significant depreciation in foreign currencies relative to U.S. Dollars, on which the ranking is based, also accounts for some of the decline.

While 2015 was not devoid of severe natural catastrophes, many events were either away from population centers or were in areas of low insurance penetration. The relatively benign catastrophe environment has put significant downward pressure on rates. With investment yields at unprecedented low levels, the focus must remain on underwriting discipline.

In 2015, most reinsurers again delivered underwriting profits and solid earnings. Combined ratios for nearly 90% of the Top 50 were below 100, driven in part by continued favorable development and well-diversified books of business. Surplus growth once again outpaced net premium revenue growth. Alternative capacity in the form of catastrophe bonds, sidecars, and other structured products continue to fuel strong price competition. It is currently estimated that alternative capital represents approximately USD 71 billion of capacity, roughly 20% of the total dedicated capacity of the reinsurance market.

Although the Top 50 as a group generally reported strong operating results, a summary of notable changes within the rankings can be found in **Exhibit 5**.

Organic growth and consolidation were the most significant drivers of upward movements in the ranking. RenaissanceRe increased six spots in the rankings to No. 20, driven by a 30% growth in gross premiums through completing their acquisition of Platinum, while Arch moved up five places to No. 22, driven by a 25% increase in gross premiums attributable to the consolidation of Watford Re into their reinsurance operations.

Qatar Re surged fifteen places to No. 35 due to a reported 116% increase in gross premiums written, driven by an aggressive growth strategy backed by a robust backing of capital, while Taiping Re advanced five spots to No. 37 due to a reported 31% increase in gross premiums through organic growth in the Chinese life reinsurance market. Third Point Re moved up five to No. 44 due to a reported increase in gross premiums written of 17%, driven primarily by new casualty business. Growth may come at a price, however, as evidenced by adverse reserve development recorded by Third Point in the second quarter of 2016.

Discipline in competitive market conditions and changes in foreign exchange rates were the most significant drivers of downward movements in ranking. Allied World and QBE reported a 15% and 20% decrease in gross reinsurance premiums written, respectively,

Exhibit 3

Top 50 Global Reinsurance Groups

(Ranked by unaffiliated gross premium written in 2015)
(USD Millions)[1]

2016 Ranking	Company Name	Reinsurance Premiums Written: Life & Non-Life Gross	Life & Non-Life Net	Non-Life only Gross	Non-Life only Net	Total Shareholders' Funds[2]	Ratios[3] Loss	Expense	Combined
1	Munich Reinsurance Company[4]	36,976	35,279	19,319	18,449	33,837	57.0	32.6	89.7
2	Swiss Re Ltd.	32,249	30,442	19,561	19,197	33,606	53.3	34.1	87.4
3	Hannover Rueck SE[4]	18,651	15,945	10,204	8,851	9,591	69.3	25.3	94.7
4	SCOR S.E.	14,665	13,228	6,254	5,584	6,953	59.1	32.0	91.1
5	Lloyd's [5, 6]	12,740	10,237	12,740	10,237	35,903	48.7	38.0	86.7
6	Berkshire Hathaway Inc.[7]	12,236	12,236	7,049	7,049	258,627	N/A	N/A	90.5
7	Reinsurance Group of America Inc.	9,371	N/A	N/A	N/A	6,135	N/A	N/A	N/A
8	China Reinsurance (Group) Corporation	8,283	7,546	4,743	4,652	10,934	58.0	38.0	96.0
9	Everest Re Group Ltd.[8]	5,876	5,378	5,876	5,378	7,609	56.6	26.8	83.4
10	PartnerRe Ltd.	5,548	5,230	4,277	4,022	6,903	54.0	31.6	85.6
11	Korean Reinsurance Company	5,443	3,739	4,812	3,197	1,719	80.5	18.0	98.4
12	Great West Lifeco	4,173	4,065	N/A	N/A	18,220	N/A	N/A	N/A
13	Transatlantic Holdings, Inc	3,662	3,387	3,662	3,387	5,210	55.2	34.3	89.5
14	General Insurance Corporation of India[9]	2,786	2,474	2,751	2,445	5,936	85.2	24.5	109.7
15	XL Group plc	2,583	2,091	2,273	2,029	13,654	45.8	35.2	81.0
16	MAPFRE RE, Compania de Reaseguros S.A.[10]	2,289	2,071	1,724	1,508	1,283	62.8	25.2	87.9
17	R+V Versicherung AG[11]	2,164	2,120	2,136	2,092	2,349	73.5	24.6	98.0
18	The Toa Reinsurance Company, Limited[9, 12]	2,067	1,857	2,067	1,857	1,501	72.8	24.7	97.5
19	Axis Capital Holdings Limited	2,021	1,915	2,021	1,915	5,867	54.1	31.9	86.0
20	RenaissanceRe Holdings Ltd.	2,011	1,416	2,011	1,416	4,732	32.0	32.7	64.7
21	MS Amlin plc[13]	1,930	1,588	1,930	1,588	2,741	47.1	31.1	78.2
22	Arch Capital Group Ltd.[14]	1,908	1,504	1,908	1,504	6,944	48.7	34.4	83.1
23	Assicurazioni Generali SpA	1,894	1,894	797	797	26,999	75.3	26.5	101.8
24	QBE Insurance Group Limited	1,624	1,023	1,624	1,023	10,560	45.9	37.5	83.4
25	Tokio Marine Holdings, Inc.[12, 15]	1,546	1,339	1,546	1,339	29,152	54.5	38.4	92.9
26	Odyssey Re Holdings Corp.	1,496	1,376	1,496	1,376	3,958	49.8	32.2	82.0
27	MS&AD Insurance Group Holdings, Inc.[9, 12]	1,417	N/A	1,417	N/A	22,617	N/A	N/A	N/A
28	Caisse Centrale de Reassurance	1,407	1,369	1,306	1,273	2,388	48.8	14.7	63.5
29	Pacific LifeCorp	1,384	1,384	N/A	N/A	10,104	N/A	N/A	N/A
30	Validus Holdings, Ltd.[16]	1,303	1,149	1,303	1,149	3,794	39.9	27.1	66.9
31	Aspen Insurance Holdings Limited	1,249	1,154	1,249	1,154	3,420	45.8	34.6	80.4
32	Endurance Specialty Holdings, Ltd.	1,235	1,070	1,235	1,070	5,124	35.8	33.6	69.4
33	Deutsche Rueckversicherung AG	1,177	730	1,131	699	242	68.5	30.9	99.4
34	Sirius International Group, Ltd.	1,161	848	1,161	848	2,183	49.9	35.1	85.1
35	Qatar Reinsurance Company, Limited	1,156	343	1,156	343	532	67.6	19.0	86.5
36	IRB - Brasil Resseguros S.A.	1,113	767	1,001	671	814	62.9	20.4	83.3
37	Taiping Reinsurance Co. Ltd[12]	1,033	822	594	505	799	58.4	34.9	93.3
38	Markel Corporation	965	824	965	824	7,841	55.3	34.5	89.7
39	Chubb Limited[17]	883	828	883	828	29,135	34.2	31.0	65.2
40	American Agricultural Insurance Company[18]	850	305	850	305	541	71.4	19.0	90.4
41	Allied World Assurance Company Holdings, AG	801	766	801	766	3,533	53.1	29.0	82.2
42	Maiden Holdings, Ltd.	777	735	777	735	1,349	73.5	29.9	103.3
43	ACR Capital Holdings Pte, Ltd.[19]	739	357	739	357	807	70.6	38.6	109.2
44	Third Point Reinsurance Ltd	702	701	702	701	1,396	68.9	35.8	104.7
45	African Reinsurance Corporation	689	588	645	544	780	54.1	34.3	88.4
46	Hiscox Ltd	649	370	649	370	2,267	26.0	25.4	51.4
47	W.R. Berkley Corporation	643	598	643	598	4,633	58.4	38.2	96.6
48	Sompo Japan Nipponkoa Holdings, Inc [9, 12]	638	539	638	539	13,717	N/A	N/A	N/A
49	Nacional de Reaseguros, S.A.	559	405	490	333	319	62.3	30.8	93.2
50	Peak Reinsurance Company Ltd	532	514	457	439	717	67.8	29.6	97.4

[1] All non-USD currencies converted to USD using foreign exchange rate at company's fiscal year-end.
[2] As reported on Balance Sheet.
[3] Non-Life only.
[4] Net premium written data not reported, net premium earned substituted.
[5] Lloyd's premiums are reinsurance only. Premiums for certain groups within the rankings also may include Lloyd's Syndicate premiums when applicable.
[6] Total shareholders' funds includes Lloyd's members' assets and Lloyd's central reserves.
[7] Loss and expense ratio detail not available on a GAAP basis.
[8] Based on Everest Re Group Ltd. consolidated financial statements and includes Mt. Logan segment.
[9] Fiscal year-end March 31, 2016.
[10] Premium data excludes intergroup reinsurance.
[11] Ratios are as reported and calculated on a gross basis.
[12] Net asset value used for total shareholders' funds
[13] MS Amlin data reflects legacy Amlin plc year-end 2015 results.
[14] Based on Arch Capital Group Ltd. consolidated financial statements and includes Watford Re segment.
[15] TSF of Tokio Marine Holdings Inc. at year-end Mar. 31, 2016, premium data based on Tokio Millennium Re AG year-end Dec. 31, 2015.
[16] Based on Validus Holdings, Ltd. consolidated financial statements and includes AlphaCat segment.
[17] Chubb Limited data reflects legacy ACE Ltd year-end 2015 results.
[18] Data and ratios based on U.S. Statutory Filing.
[19] Data based on unaudited calendar year Jan. 1 to Dec. 31, 2015.
(N/A) - Information not applicable or not available at time of publication.

Source: A.M. Best data and research

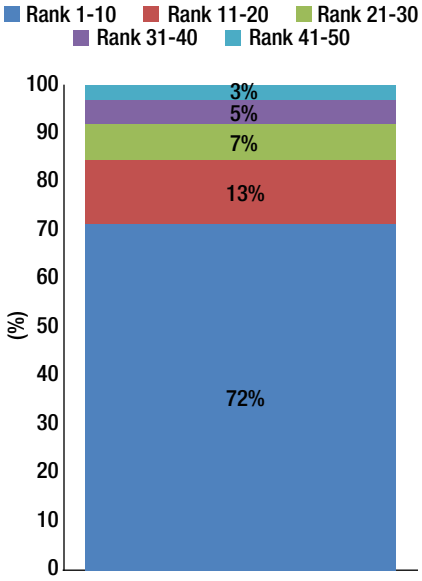
driven by discipline in the increasingly competitive environment. Sompo Japan Nipponkoa reported a 12% decrease in gross reinsurance premiums written following its acquisition of a cedant, Canopius, in 2014.

IRB reported a 31% increase in gross premiums in Brazilian Reals; however, the rate of depreciation in Reals to Dollars has outpaced premium growth. Thus, exchange rates have resulted in a 7% decline in gross premiums written and a ranking decline of five to No. 36.

Maiden Re reported a 14% decline in gross premiums written primarily as the result of the sale of a large client company to an acquirer early in the year. Subsequently, Maiden declined four places to No. 42.

It is an unusual year in that two companies joined the Top 50 ranking as a result of some consolidation in the sector. Spanish reinsurer Nacional de Reaseguros, S.A. and Peak Reinsurance Company Ltd. of Hong Kong joined the ranking for the first time, while former No. 23 Catlin Group Ltd. and former No. 45 Montpelier Re Holdings Ltd. were acquired by XL Group plc and Endurance Specialty Holdings, Ltd., respectively, and their results are now consolidated. Nacional de Reaseguros, S.A. and Peak Re grew gross premiums written in 2015, resulting in their joining the ranks of the Top 50 at No. 49 and No. 50, respectively.

Exhibit 4
Life & Non-Life GPW Distribution by Ranking



Source: A.M. Best data and research

In a time when it is challenging to grow organically, mergers and acquisitions continue to be a popular theme within the industry, as reinsurers compete to remain relevant to stakeholders. As mentioned above, two companies dropped off the Top 50 list due to the completion of an M&A transaction: XL acquired Catlin for USD 4.28 billion and Endurance acquired Montpelier Re for USD 1.83 billion. While XL jumped three spots to No. 15 in this year's ranking, Endurance remained at No. 32. We also previously referenced the six-spot boost for RenaissanceRe into the Top 20 following its purchase of Platinum.

Exhibit 5
Notable Changes in Ranking

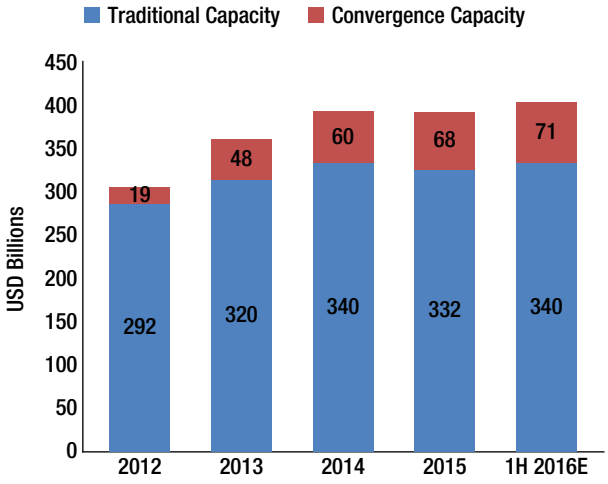
Upward	2015	2016	Δ	Downward	2015	2016	Δ
Qatar Re	50	35	15	IRB - Brasil Resseguros	31	36	-5
RenaissanceRe	26	20	6	Allied World	37	41	-4
Arch Capital Group	27	22	5	Maiden Re	38	42	-4
Taiping Re	42	37	5	Sompo Japan Nipponkoa	44	48	-4
Third Point Re	49	44	5	QBE Insurance Group	20	24	-4

Source: A.M. Best data and research

In the first half of 2016, the Chubb/ACE and Mitsui Sumitomo/Amlin transactions closed, and consolidation continues on a smaller scale throughout the (re)insurance industry. While the year following a significant M&A deal can be considered a transition year, a time when people, processes, and systems are integrated, the second and third years following a deal is often more telling of the success of an integration to the wider organization and realizing efficiencies of scale in terms of cost savings.

Looking forward, many of the themes of the last few years continue, and, as a result the top quintile of the rankings, are expected to remain largely consistent. Munich Re, Swiss Re, and Hannover Re have occupied the first, second, and third spots, respectively, since 2010. Following Gen Re's announcement of its agreement for Transatlantic to act as exclusive

Exhibit 6
Estimated Dedicated Reinsurance Capital: 2012 to Mid-year 2016



Sources: Guy Carpenter, A.M. Best data and research

underwriting manager for certain property and casualty treaty business, it will be interesting to monitor its success and whether others in the market will also enter into innovative arrangements in order to grow their books.

Dedicated reinsurance capital continues to grow both from traditional reinsurance and alternative sources. (**Exhibit 6**). This abundance of capital is good for buyers of reinsurance in negotiating pricing and terms and conditions, or in some cases purchasing more reinsurance protection, as reinsurers try to maintain their market position while maintaining underwriting discipline.

Reinsurance Outlook Maintained at Negative

A.M. Best is holding its outlook for the reinsurance sector at negative, citing the significant ongoing market challenges that will hinder the potential for positive rating actions over time and may eventually translate into negative rating pressures. Much of what is written here to support A.M. Best's view has been mentioned in some of our previous reports. During the earlier stages of this soft market the analogy was made that the best way to survive the pull of a riptide is to swim parallel to the shore until the current sets you free. However, we'll now add that if a person has been swimming and treading water for too long, the situation can become untenable. That is where we are in the later stages of this soft market.

Rate of deterioration is abating, but a negative trend remains

As compression continues bearing down on investment yields and underwriting margins, this strain on profitability has placed a drag on risk-adjusted returns. At this point, our rating outlook remains longer-term than our typical 12-18 months. The market headwinds present significant longer-term challenges that industry players need to work through. The companies that are not proactive will not lead their own destiny. It is likely that several franchises that exist today will be sporting the logo of another brand by the time this soft market has run its full course.

Declining rates, broader terms and conditions, unsustainable flow of net favorable loss reserve development, low investment yields, and continued pressure from convergence capital are all negative factors that will adversely impact risk-adjusted returns over the longer-term. Interest rates remain extraordinarily low globally, and the prospects for any meaningful relief are delayed as a consequence of "Brexit". These weak operating fundamentals are being exacerbated by continued weakening demand from primary insurers as they retain more business to leverage their own excess capacity. Recent indications of a market bottoming are emerging, but the overriding trend remains negative, which is concerning. While a broader cyber (re)insurance solution in the market, as well as regulatory changes in the European Union and China, may over time provide some new business opportunities for reinsurers, it is too early to gauge any potential benefits. The full consequence of "Brexit" is also difficult to gauge at this point. However, operationally, the transacting of reinsurance business should not be affected as trade restrictions between the UK and EU are unlikely to apply to reinsurance.

Reinsurers are responding to these challenges by employing greater capital market capacity to help optimize results and reduce net probable maximum loss (PML) for peak zones as a percentage of capital. A.M. Best believes that convergence capital accounts for roughly 20% of the dedicated global reinsurance market capacity. This percentage has been steadily growing year-over–year, which is why cycle management has been a key strategy for those organizations possessing the capability to oscillate between primary and reinsurance platforms. There has also been meaningful effort to embrace new opportunities and geographies, produce fee income, and a subtle migration into asset classes that will produce some increased investment yield. Further market consolidation is also a likely response to the current market environment as balance sheet scale becomes even a more important attribute to retain and win new clients. M&A activity remains an important strategic option to gain greater scale and diversification as companies navigate the market cycle. However, M&A does have potential hazards and can have either a positive or negative rating consequence depending on the quality of the partners, earnings accretion, and execution risk.

Broadly speaking, rated balance sheets are currently well-capitalized and capable of withstanding various stress scenarios. However, over time, this strength may be eroded for

some carriers as earnings come under increased pressure, favorable reserve development wanes, earnings grow more volatile, and the ability to earn back losses following events is prolonged by the instantaneous inflow of alternative capacity. All of these issues reflect increased concern that underwriting discipline has diminished as companies look to protect market share at the expense of profitability.

Given where rate adequacy is, it will continue to take optimal conditions, including benign or near-benign catastrophe years, a continued flow of net favorable loss reserve development, and stable financial markets to produce even low double-digit returns. Such return measures would have been considered average or perhaps mediocre just a few short years ago. The reality of the current situation is that a major catastrophe will occur at some point and the mask of redundant reserves will eventually be removed to reveal the true ramifications of current market conditions. If history is a guide, it may be uglier than some believe.

In our view, companies with diverse business portfolios, advanced distribution capabilities, and broad geographic scope are better-positioned to withstand the pressures in this type of operating environment and have greater ability to target profitable opportunities as they arise. It also places increased emphasis on dynamic capital management in order for companies to manage the underwriting cycle and remain relevant to equity investors and the capital markets.

Difficult Operating Environment Challenges Competitive Position and Prospective Performance of Lloyd's

Lloyd's occupies an excellent position in the global insurance and reinsurance markets as a specialist writer of property and casualty risks. The collective size of the market and its unique capital structure enable syndicates to compete effectively with large international insurance groups under the well-recognized Lloyd's brand. Its competitive strength derives from its reputation for innovative and flexible underwriting, supported by the pool of underwriting expertise in London.

On July 21, 2016, A.M. Best affirmed the Best's financial strength rating of A (Excellent) and the issuer credit ratings of "a+" of the Lloyd's market. The outlook on each rating was revised to stable from positive. The ratings reflect Lloyd's strong and stable risk-adjusted capitalization, excellent business profile, and recent strong underwriting performance. The revision of the outlooks to stable from positive reflected A.M. Best's view that an upgrade of the ratings in the short-term is unlikely, owing to pressure on Lloyd's competitive position and prospective financial performance in an increasingly difficult operating environment.

Overall operating performance has been good in recent years, supported by strong technical performance as demonstrated by an average five-year combined ratio of 91% (2011-2015). However, prospective performance is expected to be weaker than in the recent past due to deterioration in premium rates and assuming average catastrophe experience and a lower level of reserve releases.

In addition, the growth of regional (re)insurance hubs combined with the comparatively high cost of placing business at Lloyd's is reducing the flow of business into the London market. There has been a proactive response by Lloyd's to these threats. Improved access to international business is being supported by the Vision 2025 strategy and the establishment of regional platforms, and Lloyd's continues to implement initiatives to improve efficiency and reduce operating costs.

On 23 June 2016, a referendum was held in the United Kingdom as to whether the country should leave or remain in the European Union (EU). The result, by a slim majority of 4% of those that voted, was to leave. Depending on the outcome of the exit negotiations, leaving the EU could restrict Lloyd's access to European insurance business, although Lloyd's has a number of options available to it to ensure continued access to this business if its passporting rights in the EU are no longer available. As reinsurance can be written on a cross-border basis, Lloyd's access to reinsurance business in the EU should not be affected.

Total reinsurance premiums written by Lloyd's increased by just over 1% in 2015 to GBP 8.6 billion, with some variation across the classes within the segment. Lloyd's reinsurance class comprises property (with property catastrophe excess of loss the largest segment), casualty (primarily non-marine excess of loss and U.S. workers' compensation), and specialty reinsurance (marine, energy, and aviation reinsurance).

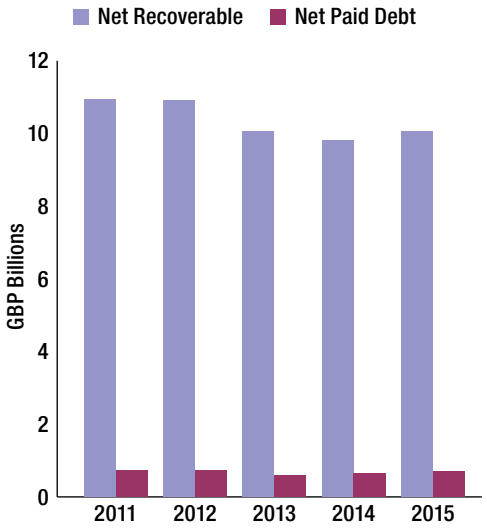
Property reinsurance, which accounts for over half the reinsurance segment, reported a 3.5% increase in GWP, largely attributable to exchange rate strengthening of USD-denominated business. Although the pace of decline has slowed in some key markets, in the absence of major natural catastrophe events, premium rates continue to soften and terms and conditions

to widen. There were several large loss events during 2015, including severe winter weather in the United States, a European windstorm, and cyclone damage in Australia, but none of these losses, either alone or in aggregate, had a lasting positive effect on premium rates, particularly with capital in the reinsurance market continuing to be plentiful.

Lloyd's reinsurance segment overall reported another strong result in 2015, with an accident year combined ratio of 96% and a calendar year combined ratio of 86.7%. The positive result was driven by the largest segment – property reinsurance – where benign catastrophe experience ensured another strong underwriting profit. Casualty and specialty reinsurance both reported accident year combined ratios above 100%.

Lloyd's reinsurance ceded was stable at approximately 18% in 2015 (excluding reinsurance placed within Lloyd's). The Performance Management Directorate's ongoing focus on syndicates' business plans and their reinsurance dependence is expected to support continued stability in this ratio in 2016. The Lloyd's reinsurance panel remains well-diversified, with the top 10 external reinsurance groups accounting for 45% of total reinsurance recoverables in 2015 (2014: 44%).

Exhibit 7
Reinsurance Counterparties (2011-2015)



Source: Lloyd's

Exhibit 7 shows the development in Lloyd's net recoverables and total net paid debt. Total net reinsurance recoverables were up to GBP 10.0 billion at year-end 2015 from GBP 9.8 billion in 2014. Net reinsurance recoverables have varied between GBP 9 billion and GBP 11 billion since 2008.

Lloyd's continues to monitor its reinsurance exposure through a range of submitted returns, complemented by monitoring of Realistic Disaster Scenarios for individual syndicates. The security required by managing agents for their syndicate reinsurance programs is reviewed on a regular basis in order to address any issues that have the potential to affect the financial strength of the overall market. In particular, total outstanding reinsurance recoverables, counterparty concentration risk, and the purchasing trends of individual syndicates are all closely monitored.

The Convergence Market: Two Decades in the Making

Introduction

After two decades of maturation, the convergence between the insurance and capital markets continues to compete with, and also complement, traditional reinsurance in facilitating risk transfer from insurers and holders of peak exposures.

The alternative market continues to evolve from insurance-linked securities, such as catastrophe bonds, longevity bonds, sidecar debt, and industry-loss warranties (ILWs) to insurance-linked structures, including sidecars, reinsurance transformers, ILS funds engaged in collateralized reinsurance programs and warehousing insurance-related exposures and ILS securities, and hedge fund reinsurers. Current estimates place the total value of these alternative market products — catastrophe bonds, sidecars, collateralized reinsurance programs, and ILWs — at approximately USD 71 billion, roughly 20% of the nearly USD 400 billion global reinsurance market. This is about 20% of the total limit for catastrophe risk being ceded to capital market participants. Some industry participants boldly forecast that this alternative market segment may balloon to USD 150 billion within the next five years.

Here is the estimated property & casualty (P/C) related risk capacity provided by the ILS segment in 2015:

- Catastrophe bond risk capacity — USD 23 billion;
- Collateralized reinsurance — USD 40 billion;
- Sidecar capacity — USD 5 billion;
- ILWs — USD 3 billion.

Catastrophe Bonds – P/C-Related-Risks

Approximately USD 69 billion in catastrophe bonds have been issued since 1997, with average annual growth of about 22% through 2015. An estimated USD 6.8 billion in P/C-related catastrophe bonds were issued in 2015, marking the fourth highest year in the past two decades. This was a decrease from USD 8.3 billion and USD 7.3 billion issuances in 2014 and 2013, respectively (**Exhibit 8**). Catastrophe bond risk capital reached USD 22.8 billion in 2014 and approximately USD 23.5 billion at year-end 2015. Issuance during the first six months of 2016 was around USD 3.3 billion with risk capital at approximately USD 21.3 billion as of June 30, 2016. Indemnity triggers continue to outpace non-indemnity triggers, both in dollar amount and number of issuances during the past three years. The majority of catastrophe bonds were not rated during 2015 and the first half of 2016.

Cat bond lite

The cat bond lite segment, a private transaction separate from traditional 144A cat bond offerings, continued to grow in 2015 with the issuance of approximately USD 903.9 million from 20 transactions. There were seven transactions alone through insurance-broker-sponsored platforms in the first half of 2016,

Exhibit 8

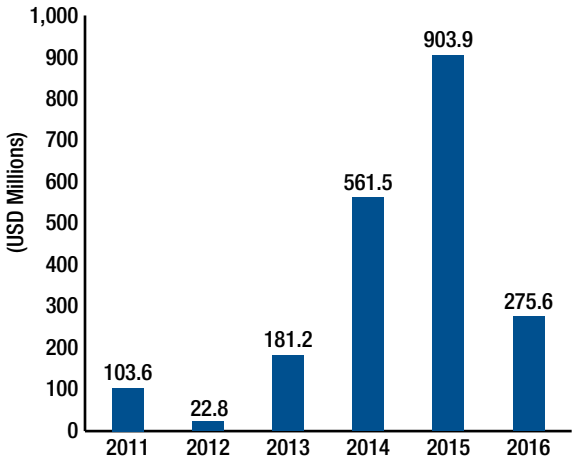
Catastrophe Bond Issuance – P/C-Related Risks

Year	Amount (USD Millions)	% Change from Prior Year
2016*	3,335.35	N/A
2015	6,777.92	-18.32
2014	8,298.44	13.46
2013	7,313.78	24.42
2012	5,878.11	37.36
2011	4,279.40	-0.45
2010	4,298.79	26.50
2009	3,398.38	24.54
2008	2,728.66	-63.27
2007	7,429.55	58.30
2006	4,693.40	135.72
2005	1,991.10	74.23
2004	1,142.80	-33.93
2003	1,729.80	41.85
2002	1,219.50	23.83
2001	984.80	-13.54
2000	1,139.00	17.80
1999	966.90	14.28
1998	846.10	33.67
1997	633.00	N/A
Total/Average	**69,084.78**	**22.02**

*Through June 30, 2016
Source: A.M. Best data and research

which totaled USD 276 million. This segment of the cat bond market growth reflects the desire of small-to-medium-size insurers/sponsors to lower transaction and structuring costs (**Exhibits 9a and 9b**).

Exhibit 9a
Private Catastrophe Bonds Issued Through 2011-2016 (P/C-Related Risks)



Note: Through June 30, for year 2016
Sources: Guy Carpenter, A.M. Best data and research

Exhibit 9b
Private Cat Bonds Issued in 2016 as of June 30, 2016 (P/C-Related Risks)

Vehicle	Platform/Owner	Amount (USD Millions)	Issue Date	Maturity Date
Resilience Re Series 15121A	Resilience Re/Willis Capital Market & Advisory	57.00	1/1/2016	1/9/2017
Resilience Re Series 1642B	Resilience Re/Willis Capital Market & Advisory	85.00	4/12/2016	4/7/2017
Market Re Ltd (Series 2016-2) Class A	Jardine Lloyd Thompson Capital Markets	78.70	6/7/2016	6/7/2017
Oak Leaf Re Ltd	Jardine Lloyd Thompson Capital Markets	47.13	6/8/2016	6/8/2017
Oak Leaf Re Ltd	Jardine Lloyd Thompson Capital Markets	3.83	6/8/2016	6/8/2017
Oak Leaf Re Ltd	Jardine Lloyd Thompson Capital Markets	2.87	6/9/2016	6/10/2017
Market Re Ltd (Series 2016-2) Class B	Jardine Lloyd Thompson Capital Markets	1.04	6/9/2016	6/10/2017
Total		**275.56**		

Source: A.M. Best data and research

New perils & geographic regions

Peak exposures such as U.S. wind, U.S. earthquake, European wind, Japanese earthquake, and Japanese typhoon continue to dominate the cat bond market. There have been just a few transactions involving a non-peak peril that use "cat bonds" to transfer insurance risk to the capital market. Chinese earthquake; non-modeled perils including wildfires, meteor impact, volcanic eruption, operational risks, and U.S. private mortgage guaranty insurance were added to the mix between 2014 and 2016. This may open the door for other perils such as marine, aviation, terrorism risk, flood insurance exposure, and cyber risk to become part of the convergence market phenomenon.

Two insurance-linked notes related to operational risks and mortgage insurance were issued in the first half of 2016. The operational-risk-linked notes were issued by Operational Re Ltd. (CHF 220.0 million) and sponsored by Credit Suisse/Zurich Insurance Company Ltd. The private mortgage guaranty insurance risk linked notes were issued by Bellemeade Re II Ltd. (USD 298.6 million) and sponsored by AIG subsidiary United Guaranty Corporation, the second such note sponsored by this company. The first issuance was in July 2015 (USD 298.9 million).

Insurers of last resort and public entities

The convergence market has provided an opportunity for insurers of last resort, insurance pools, and non-insurance public entities with huge peak exposures to continue tapping into the ILS market. Just like other primary insurance companies seeking to transfer peak risk exposures, these entities can compare the cost of traditional reinsurance coverage with the use of insurance-linked instruments. This added benefit may reduce reinsurance costs. In 2015, approximately USD 2.3 billion out of the USD 6.8 billion cat bonds was issued by these entities. Approximately USD 7.9 billion of cat bonds have been issued by these entities between 2009 and 2015.

Defaulted catastrophe bonds

Hurricane Patricia, the strongest hurricane ever measured in the Western hemisphere, wreaked havoc off Mexico's Pacific coast on Oct. 23, 2015, and triggered the Class C notes (USD 100 million) of MultiCat Mexico Ltd. Series 2012-1 cat bond. This resulted in a USD 50

million loss (50% payout of the notes' principal). Despite the trigger events that caused varying degrees of principal loss on 14 transactions from the hundreds of cat bonds issued, market participants have not abandoned this asset class and have sought solutions. Overall, the average recovery rate is approximately 48%, associated with a loss given default of 52% based on the historical defaulted cat bonds (**Exhibit 10**). The potential for legal disputes still remains a problem

Exhibit 10
Defaulted Catastrophe Bonds

Vehicle	Sponsor	Issue Date	Claim Year	Payment Amount (USD Millions)	Affected Tranche Issuance (USD Millions)	% Payout of Tranche Amount	Total Issuance (All Tranches & Equity) (USD Millions)	Reason for Default	Comments
MultiCat Mexico Series 2012-1 (Class C)	Swiss Re	Jul-12	2016	50.0	100.0	50.00	305.0	Loss Event - Hurricane Patricia	3 classes of Notes A, B, C total USD 305m; only Class C USD 100m impacted
Successor X 2011-3 (Class V-F4)	Swiss Re	Nov-11	2013	15.0	80.0	18.75	130.0	Loss Event - Hurricane Sandy	Notes offered under the Successor X Series Program. 2 tranches issued under Successor X Series 2011-3 amounted to USD 130m
Vega Capital 2010	Swiss Re	Dec-10	2011	15.9	106.5	14.93	106.5	Loss Event - 2011 Japan Earthquake	2 Classes of Note C and D total USD 106.5m; Class C USD 63.9m and Class D USD 42.6m
Vega Capital 2010	Swiss Re	Dec-10	2013	7.2	106.5	6.76	106.5	Loss Event - Hurricane Sandy	2 Classes of Note C and D total USD 106.5m; Class C USD 63.9m and Class D USD 42.6m
Mariah Re Ltd. Series 2010-1	American Family Ins.	Nov-10	2011	100.0	100.0	100.00	100.0	Loss Event - US Severe Thunderstoms	Single tranche
Mariah Re Ltd. Series	American Family Ins.	Nov-10	2011	100.0	100.0	100.00	100.0	Loss Event - Warm Winter Temperatures	Single tranche
Muteki Ltd.	Munich Re/ Zenkyoren	May-08	2011	300.0	300.0	100.00	300.0	Loss Event - 2011 Japan Earthquake	Single tranche
Willow Re Ltd.	Allstate	Jun-08	2008	10.0	250.0	4.00	250.0	Default of Total Return Swap Counterparty (Lehman)	Single tranche
Newton Re Ltd.	Catlin	Feb-08	2008	4.0	150.0	2.67	150.0	Default of Total Return Swap Counterparty (Lehman)	Single tranche
Ajax Re Ltd.	Aspen Ins.	Apr-07	2008	72.0	100.0	72.00	100.0	Default of Total Return Swap Counterparty (Lehman)	Single tranche
Carillon Re Ltd.	Munich Re	Jun-06	2008	31.0	84.5	36.69	84.5	Default of Total Return Swap Counterparty (Lehman)	3 Classes of Note A, B & C total USD 84.5m
Crystal Credit Ltd (Class B & C)	Swiss Re	Jan-06	2011	€102.0	€144.0	70.83	€252.0	Loss Event - Credit Insurance Losses	3 Classes of Notes total €252.0m; Classes B & C impacted; Class B €81m & Class C €63m
Avalon Re Ltd. (Class C Notes)	Oil Casualty Ins. Ltd.	Jul-05	2010	12.7	135.0	9.41	405.0	Loss Event - Hurricane Katrina & Steam Pipeline Explosion	3 classes of Notes A, B, C total USD 405m; only Class C USD 135m impacted
Kamp Re 2005 Ltd	Zurich American Ins. Co.	Jul-05	2009	144.0	190.0	75.79	190.0	Loss Event - Hurricane Katrina	Single tranche
Georgetown Re	St Paul Re.	Dec-96	2000	0.5	44.5	1.12	68.5	Loss Event - World Trade Center Attack	1 debt tranche USD 44.5m and equity USD 24m; Only one tranche impacted USD 44.50m
Kelvin Ltd.*	Koch Energy Trading Inc.	Nov-99	2000	5.1	44.6	11.43	44.6	Loss Event - Warm Winter Temperatures	2 tranches of Notes under a weather portfolio swap

*Transfer of weather-related exposures to the capital market
Source: A.M. Best data and research

as ILS investors move further down the risk chain into more working layers of catastrophic coverage and the use of models for perils, which has not gained full industry acceptance. Also, the potential for major catastrophic events still exists and may exacerbate the legal risk.

Risk/Return dynamics

Benchmarks for estimating the actual risk transferred by ILS market participants include the attachment probability, expected loss percentage, and exhaustion probability. The attachment probability (the frequency at the point of attachment) details the likelihood that noteholders will lose money; the expected loss percentage details the amount noteholders will lose on average; and the exhaustion probability quantifies the prospect that noteholders will lose everything. Two simple metrics used by ILS investors to gauge the perceived risk/reward scenario include: ratio of spread to expected loss (loss multiplier) and expected excess return. The spread, expressed in basis points, in addition to coupon interest, is the compensation to noteholders of a potential cat bond loss. In effect, this is the premium paid to noteholders in addition to interest payments on the note's proceeds, which are invested in permitted investments. The expected excess return is the difference between the spread and the expected loss percentage.

Exhibit 11
Loss Multiplier (P/C-Related Risks)

Year	No. of Tranches*	No. of Transactions*	Spread** (%)	Expected Loss** (%)	Spread to Expected Loss
2016	23	14	6.55	3.08	2.12x
2015	31	25	5.31	2.19	2.43x
2014	35	25	4.81	1.60	3.00x
2013	41	32	5.82	1.68	3.47x

Note: 2016 is through June 30, 2016
* With expected loss information
** Dollar weighted (Average)
Source: A.M. Best data and research

The loss multiplier has been declining for the past four years, underscoring the catastrophe bond investors' willingness to accept reduced compensation for taking on the same level of risk. Based on the 23 tranches for which spread and expected loss information was available (as of June 30, 2016), the loss multiplier on a dollar-weighted basis was 2.12x, compared with 2.43x based on 31 tranches in 2015. This loss multiplier was 3.00x based on 35 tranches in 2014, and 3.47x based on 41 tranches in 2013. This demonstrated that investors have been compensated less and less for taking on the same level of risk (**Exhibit 11**). These results are also reflected in the overall traditional reinsurance market, where the rate-on-line (premium to limit ratio) for property catastrophe reinsurance has been in the doldrums for quite some time.

Collateralized Reinsurance Structures

Collateralized reinsurance structures are the fastest-growing sector of the ILS market. Estimates place collateralized reinsurance capacity at approximately USD 40 billion and growing. The growth of this market has been propelled by ILS Funds seeking to increase leverage through the use of fronting carriers; coverage tailored for the ceding insurers; and providing coverage for risks that may not be suited for or available from other ILS instruments. Generally, collateral reinsurance structures use trust accounts to collateralize their exposures. The intent is to provide the ceding insurer with an easily available mechanism from which to tap the funds in the event of a covered loss. The assets in the trust account are segregated from other assets in case of insolvency and there are collateral release provisions that determine the release of funds or assets.

Collateral/Counterparty Risks

The proliferation in the volume and value of collateralized reinsurance transactions will undoubtedly create collateral and counterparty risks. The use of fronting arrangements and guarantees by (re)insurers further exposes the ceding insurer to the credit risk of the fronting carrier. The issue of collateral and counterparty risks is a paramount concern and may create systematic risk during major catastrophic loss events or stressed financial market conditions.

Exhibit 12
Top 10 Specialized ILS Fund Managers
(AuM)

Entity	Asset Under Management USD Millions (estimates)	ILS Strategies	Products				
			ILS	ILW	Collateralized Reinsurance	Retro	Life
Nephila Capital	10,000	Multi-instrument funds, also invest in weather	Y	Y	Y	Y	N
Credit Suisse Asset Management	7,000	Various Funds with different risk levels	Y	Y	Y	Y	Y
LGT Insurance-Linked Partners	5,800	Various Funds and mandates	Y	Y	Y	Y	Y
Fermat Capital Management	4,800	Cat bond focus	Y	Y	Y	Y	Y
Stone Ridge Asset Management	4,800	Cat bond and sidecar funds	Y	Y	Y	N	N
Securis Investment Partners	3,700	Life, P&C and mixed strategy funds	Y	Y	Y	Y	Y
Catco	3,700	Retrocession writer	N	Y	Y	Y	N
Leadenhall Capital Partners	2,900	Non-life and mortality funds, life/non-life mandates	Y	Y	Y	Y	Y
Elementum Advisors	2,900	Multi-strategy	Y	Y	Y	Y	N
Aeolus Capital Management	2,500	Retro and Collateralized reinsurance	N	Y	Y	Y	N
Total (Estimates)	**48,100**						

Source: Trading Risk

When collateral has been posted to minimize counterparty risks, the transaction's collateral agreement is expected to address issues related to maintaining the specified amount of agreed-upon liquid collateral during the term of a transaction. The collateral agreement is expected to cover the liability amount (which in most cases is the maximum liability amount or limit); the nature of the eligible collateral; any draw-down mechanism; the timing of delivery of the replenishment of the collateral; the mechanism for determining the collateral value, including any assumed haircuts; the frequency of the collateral's market valuation; and other significant aspects of collateral management.

ILS Funds

Assets under management (AuM) for specialist ILS Funds and reinsurer-backed ILS Fund managers stood at approximately USD 54 billion and USD 14 billion, respectively, as of June 30, 2016. The top 10 specialist ILS funds increased 7.7% in the first half of 2016 to USD 48 billion, compared with the same prior-year period. **Exhibit 12** depicts recent AuM estimates and the key strategies of these funds. Specialist ILS funds are finding ways to increase leverage on collateral transactions by entering into fronting arrangements, forming reinsurance transformers, and creating business models similar to traditional reinsurance/insurance entities in order to access the primary markets via Lloyds's syndicates, managing general agents/underwriters, and special purpose insurers.

Counterparties are becoming more concerned about the credit exposure of specialist ILS Funds as their reinsurance and investment activities expand, and they enter into other long duration contracts risks, and risks with longer payout patterns apart from property catastrophe risk.

Sidecars

Sidecar structures continue to flourish despite softening property catastrophe reinsurance market conditions and the benign insured loss environment. The majority of existing quota share sidecars were renewed in 2015; some have morphed into unrated/rated reinsurance entities without any fixed duration. Actively managed sidecars also witnessed significant capital growth in 2015. These structures that are more permanent in nature have become valuable revenue sources for some sponsors as they performed both underwriting and investment management services in return for a fee. The sidecar market segment creates an additional product offering for the sponsor/reinsurer and also allows leveraging of support staff and infrastructure without capital constraints.

Tail risk

In the context of sidecar transactions, tail risk is the risk borne by the insurer or reinsurer, the original sponsor of the transaction, if the sidecar is insufficiently capitalized to absorb losses and the risk assumed to be fully hedged by the sidecar. From A.M. Best's perspective, tail risk is determined by the capital amount needed such that the probability of exhausting that capital level is within a given rating tolerance.

Industry Loss Warranties (ILWs)

Given the private nature of most of the ILW deals, industry estimates range from as low as USD 2 billion to as high as USD 7 billion. A more realistic range is USD 3-4 billion of market capacity. In its basic structure, an ILW provides payment if a specific natural catastrophe event reaches a pre-specified trigger level. An ILW can be structured as a reinsurance contract or a derivative contract. As a reinsurance contract, two conditions must be satisfied for payment to occur: (1) actual industry-wide losses must exceed the pre-specified industry loss level, and (2) the protection buyer's losses, i.e. indemnity, must also exceed a selected attachment level. In most cases, the attachment level for the protection buyer is set so low that once the pre-specified industry losses level are exceeded, the protection buyer's attachment level is also breached. As a derivative contract, payment is made if actual industry loss amount due to a covered event exceeds the pre-specified industry loss amount.

Basis risk

Basis risk refers to what an insurer or reinsurer would recover from an actual event loss, less any proceeds from hedging. This is a key regulatory and rating concern as the volume and value of ILS transactions continue to increase. A.M. Best is concerned that an ILW transaction or ILS instrument transaction may not trigger for a covered event, even if the sponsor has suffered a loss. This "negative" basis risk is especially a concern for ILS instruments with non-indemnity triggers. From A.M. Best's viewpoint, the objective in estimating basis risk is to determine how much reinsurance credit should be given to non-indemnity ILS instruments in the Best's Capital Adequacy Ratio (BCAR) analysis, which is an integral element in assigning reinsurance and insurance company ratings.

Life/Health-Related Risks

The life/health-related risk transfers to the capital market continue to trail the P/C segment, despite the growing interest in this segment and the gigantic volume of longevity risks on life reinsurers' balance sheets. A.M. Best expects to see more capital market transfers of life/health-related-risks as specialist ILS Funds take on mortality, lapse, and longevity risks; and risk mitigation provided by Solvency II under the Solvency Capital Requirement both for the standard formula and the use of internal models.

Conclusion

Alternative capital will continue to flow to the reinsurance sector for the foreseeable future. ILS Fund managers will be major players in the reinsurance sector as more collateralized reinsurance programs covering nonpeak exposures are ceded to the capital market; catastrophe bond risk capital continues to grow; and the potential for longevity risk transfers becomes part of the ILS transaction mix.

Over the years, A.M. Best has consistently seen new capital enter the insurance market after a catastrophic underwriting event, albeit following the initial post-event market disruption. This new capital helps stabilize the market and address capacity issues. However, the question remains, in what form will that new capital arrive? Will it be the ILS market or the emergence of another reinsurance class as witnessed in 1993 following Hurricane Andrew, in 2001 after the 9/11 terrorism events, or in 2005 following Hurricanes Katrina, Rita, and Wilma.

The next major catastrophe will be the first for most ILS fund managers. How they might react is uncertain, but if capacity issues arise, history has shown that new capital will enter the market. A.M. Best expects that this additional capacity is more likely to come from capital market solutions than the more traditional creation of "brick and mortar" reinsurance/insurance companies.

Hedge Fund Reinsurers Struggle to Beat the Competition

Performance

Reinsurers, for the most part, have been struggling to optimize one side of the balance sheet and its ability to contribute to the return measures and competitiveness of the organization. This is evident by declining investment yields that are due in part to artificially depressed yields on fixed income securities, which may prove to be anemic compared to their inherent risk. Over the last decade, the global reinsurance industry has been losing a significant amount of surplus growth opportunity from much lower than historic fixed income investment yields. Whether you are a proponent or not, convergence capital is most likely here to stay. One manifestation of this convergence capital is the hedge-fund-sponsored reinsurer. In an environment where rate-on-line has become much more competitive and the peaks of the underwriting cycle have softened in recent history, reinsurers are looking for strategies to optimize the risk-reward balance. There are many ways to accomplish this, one of which is the hedge fund sponsored reinsurer model of which most are still in the start-up phase. To that end, it is uncertain what the specific long-term results will be compared to more traditional reinsurers.

2015 represented a challenging year for all reinsurers and hedge-fund-sponsored reinsurers were not immune to the adverse market trends. On the underwriting side of the risk and reward continuum, the soft pricing environment in almost all lines of business and geographies has led to shrinking premium volumes or at least lackluster growth for those companies that are exercising underwriting discipline. Premium growth and underwriting performance has been disappointing across the "hedge fund re" composite with a combined ratio of 111.5%, a loss ratio of 70%, and an underwriting expense ratio of 41% for 2015 (**Exhibit 13**). Of course, the start-up nature of most of these entities and related costs coupled with less than optimal premium volumes compared to fixed expenses has led to an inflated expense ratio. A normalized expense ratio would produce a combined ratio more in the 100%-105% range, which is still high by about 10 points compared to the U.S. and Bermuda reinsurance composite. It should also be noted that none of the companies in this "hedge fund re" composite were able to avail themselves of prior year reserve takedowns that have been heavily utilized by companies in the U.S. and Bermuda composite that for 2015 represented a 6-point benefit to the loss and combined ratios. The more important question yet to be answered is how reliable are the

Exhibit 13
Hedge Fund Composite – Trend Summary
(USD Millions)

	2-Yr Avg	2015	2014
NPW (P&C only)	1,606.9	1,946.4	1,267.3
Net Earned Premiums (P&C only)	1,305.5	1,585.3	1,025.6
Net Investment Income	423.0	176.0	670.0
Realized Investment Gains/(Losses)	-	-	
Total Revenue	1,703.1	1,760.0	1,646.2
Net Income	(81.4)	(278.9)	116.1
Shareholders' Equity (End of Period)	5,510.3	5,982.7	5,037.9
Loss Ratio	67.2%	70.3%	64.1%
Expense Ratio	41.0%	41.1%	40.8%
Combined Ratio	108.2%	111.5%	104.9%
Loss Reserve Development - (Favorable)/Unfavorable	2.0%	3.2%	0.8%
Net Investment Ratio[1]	38.2%	11.1%	65.3%
Operating Ratio	70.0%	100.4%	39.6%
Return on Equity	-1.2%	-4.7%	2.4%
Return on Revenue	-4.4%	-15.8%	7.1%
NPW (P&C only) to Equity (End of Period)	28.8%	33%	25%
Net Reserves to Equity (End of Period)	13.6%	20%	8%
Gross Reserves to Equity (End of Period)	18.4%	22%	15%

[1] Net Investment Ratio based on PC NPE
Source: A.M. Best data and research

current loss picks for these companies. Future adverse reserve development would certainly not bode well against the current backdrop of underwriting performance and lackluster investment returns. Time will tell.

Investment results for 2015 for the hedge-fund-sponsored composite were similarly disappointing, with a 0.9% investment yield, with the most adverse performance in the composite being down 22.2% and the most beneficial in the composite being up 25.9%. It is apparent that in an investment climate characterized by significant volatility and a very high P/E ratio compared to historical averages, some investment styles can suffer compared to strategies that have significant diversification assistance from other non-correlated strategies.

The USD 279 million net loss realized by the hedge-fund-sponsored composite for 2015 was equally disappointing. Return on equity measures were adverse by 4.7% for 2015. While investment and overall performance has been disappointing, it is too early to jump to the conclusion that the Hedge Fund Re model does not work. The level of investment volatility experienced is not unexpected and is contemplated in our various stress tests. The success of these strategies has to be evaluated over the long term and through various market cycles. The robust capitalization of these companies provides the bandwidth to achieve success.

The ability to absorb investment volatility is apparent in view of underwriting leverage. Net premium to surplus for the hedge-fund-sponsored composite was approximately 33% for 2015, compared to approximately 60% for the U.S. and Bermuda composite. Likewise, net reserves to surplus for the hedge-fund-sponsored composite was approximately 20% for 2015 compared to approximately 121% for the U.S. and Bermuda composite. The hedge-fund-sponsored reinsurers that have been operating longer had higher leverage measures than the newer entities but none had higher operational leverage than the average of the U.S. and Bermuda composite. In general, this model mandates a lower level of underwriting leverage given the greater asset risk employed.

The hedge-fund-sponsored composite, both in aggregate and for each company individually, exhibited strong risk-adjusted capitalization at year-end 2015 despite some of the recent operational challenges. A.M. Best's rating approach contemplates stress scenarios on both sides of the balance sheet with simultaneous volatility in the investment markets and a prolonged reinsurance pricing environment.

Overall operating performance in general for the reinsurance market has been characterized by mediocre operating and return measures for the last several years. New entrants in this market have been struggling in this challenging environment and hedge fund sponsored reinsurers, taken as a group, experienced adverse results from both sides of the balance sheet in 2015. While this level of performance is not what one would hope for, this level of volatility has been anticipated and accounted for by A.M. Best's stringent start-up requirements. As with any start-up, it generally takes several years for a strategy to take hold and reach adequate economies of scale.

A.M. Best has been rating hedge-fund-sponsored reinsurers for approximately ten years. During that time, there have been several iterations of the model that have developed.

Model One we refer to as the "***build***" model and represents the initial type of hedge fund sponsored reinsurer. The build model is characterized by a stand-alone underwriting platform that is built from scratch by hiring individuals for underwriting, risk management, claims, etc. These individuals are meant to form a team that develops their own view of risk and seeks to underwrite business through the broker market, Lloyds, and through existing relationships. The investment platform of the build model can be either a single alternative asset manager like Greenlight Capital or Third Point Capital, or it may be a mosaic of hedge

funds assembled by the management team, usually with the help of a third party advisor like Goldman Sachs or The Blackstone Group. Currently rated examples of the build model are Greenlight Re, Third Point Re, Hamilton, and Fidelis.

Model Two we refer to as the "***partnership***" model and represents the next phase on the timeline of hedge-fund-sponsored reinsurers. The partnership model is characterized by reinsurance business generation from an existing underwriter. Basically, the business is priced, written, and risk-managed by an entity utilizing established platforms to source business from tested distribution channels. The investment platform of the partnership model options are the same as for the build model. Both Watford and Harrington are examples of the partnership model.

Model Three we refer to as the "***segregated portfolio***" model, which represents the next phase on the timeline of hedge-fund-sponsored reinsurers. The segregated portfolio model is characterized by a cell captive type SPV, either a segregated portfolio company or an incorporated cell company, where several different owners and hedge funds come together in a single SPV to match different alternative investment strategies with a source of reinsurance business from a common source. In some ways, the segregated portfolio model is a cooperative of sorts where a smaller allocation of unrelated investment strategies can be matched against a reinsurance business flow from an established underwriter or a panel of such entities. The cell owners would participate on the results of their own investment performance and their pro-rata share of the performance of the reinsurance business assumed. There are currently no rated segregated portfolio model entities to our knowledge.

Life Reinsurance – Business as Usual?

A.M. Best views the U.S. life reinsurance market segment as a subset of the broader global reinsurance market.

The U.S. life reinsurance market offers meaningful geographic diversification and represents the majority of the life premiums for the global companies with U.S. life reinsurance operations. Based on long-term trends of solid financial performance and capitalization of the major life reinsurers operating in the U.S. marketplace, A.M. Best does not foresee any material adverse changes to these metrics developing over the short-to-medium term.

The U.S. life reinsurance marketplace has been transformed by a wave of consolidation in past years that appears to have played itself out. The marketplace is now characterized by five players accounting for four-fifths of all new life reinsurance business. In addition, four of the five companies are subsidiaries of highly rated major composite reinsurers in Europe, which adds to the financial flexibility and affords access to capital to the life reinsurance subsidiaries. Moreover, these organizations depend heavily on parental retrocession support to fund redundant reserve strains and for other capital management considerations. The one exception is the Reinsurance Group of America Inc., which is domiciled in the U.S. While the majority of its life reinsurance business is generated in the U.S., it has substantial business flows from Canada, the United Kingdom, Australia, and emerging markets.

Historically, life reinsurers have enjoyed stable mortality results, offering earnings diversification and stability to their respective composite parent companies where non-life results often fluctuate. However, more recently, A.M. Best observes an increase in adverse mortality results driven by poorer experience in older ages and larger cases. While mortality fluctuations are not unusual, A.M. Best remains cautious and is monitoring results closely to determine if recent adverse results are the beginning of a longer-term downward trend. Weaker underwriting results are of particular concern as the current investment climate offers little in the way of income enhancement. In addition, as a general rule, life reinsurers maintain relatively conservative, lower yielding invested assets.

Previously mentioned consolidation in the U.S. life reinsurance arena has resulted in a market dominated by a few large players seeking new business opportunities in a low-growth domestic life market, exacerbated by low cession rates. While the life reinsurance market generally follows the fortunes of the direct market and cession rates have fallen drastically over the last decade, there may be a bright spot. Cession rates may rise slightly over the next few years due in part to the large reinsurers using big data to help automate and assist in the underwriting process for direct writers. When reinsurers work closely with companies, such companies often share more of the risk and this presents an additional avenue for growth.

Actuarial Guideline 48 (AG48) took effect January 1, 2015 for new life reinsurance financing solutions. AG48 bifurcates the current statutory reserves for XXX and AXXX business into two layers: the primary security layer and the balance, which approximates the level of redundant reserves. AG48 governs the types of assets that qualify as primary security, such as cash and securities listed by the Securities Valuation Office. A.M. Best is beginning to see reinsurers offer solutions that qualify as primary security under AG48 and thus may present life reinsurers with additional business opportunities.

While counterparty concentration is now more of a concern for direct writers, and new entrants may be welcomed, the U.S. life reinsurance market presents significant barriers to entry, thus the competitive landscape is not likely to change. Brand recognition and high ratings are clearly competitive advantages, as is value-added services such as underwriting

manuals and facultative capabilities. The largest life reinsurers have enjoyed these competitive advantages over the long term and have client relationships that span decades.

While fresh capital has entered the reinsurance space, either backed by private investors or private equity, new entrants have focused primarily on annuity reinsurance, including annuity block acquisitions, and there have not been any meaningful new entrants into the traditional life mortality reinsurance space in a number of years. In addition to new entrants, most life reinsurance carriers are also actively pursuing block acquisitions (sometimes referred to as admin reinsurance). Currently, the longer-term market opportunity for block acquisitions for both life and annuity business is highly favorable. This is driven by the sheer number of U.S. life insurance companies that have subscale businesses. These direct writers are challenged to grow in a meaningful way, reach new markets, or earn acceptable returns, and are looking to unlock trapped capital. As a result, many of these companies, over time, will likely be seeking a full exit or disposal of non-core businesses in order to release capital to deploy elsewhere, resulting in a favorable market opportunity for the reinsurers. However, given the spike in acquisition activity funded by alternative capital sources, A.M. Best believes certain mid-sized traditional reinsurers that have historically looked for acquisitions to complement more traditional reinsurance flows will face strong competition, and thus complete fewer deals than historical trends. This may translate into a heightened focus on traditional reinsurance business, more tailored client financial solutions, and other value-added services.

Traditional life reinsurers are focused on their core life insurance underwriting capabilities and generally accept less risky, interest-sensitive business than direct writers. Life reinsurers' earnings are driven by mortality results—while subject to adverse mortality experience over the short-term, they have been favorable longer-term and are less reliant on investment income than direct writers. As a result, life reinsurers are less pressured for investment yield relative to direct writers, and their balance sheets are generally more conservatively managed.

Despite favorable operating profiles, the U.S. life reinsurance industry does face some headwinds as well. For example, a lack of strong organic market growth reflects, in part, the long-term trend of lower cession rates from the direct market. A.M. Best estimates cession rates to be in the mid-20% range. This compares to cession rates as high as 60% a decade ago. The current level of cession rates, however, is more in line with historical levels. Reinsurance companies have since adjusted to current market conditions and do not build significantly higher cession rates into their plans. Likewise, A.M. Best believes the return to high cession rates is highly unlikely.

In addition to higher retention rates by the direct writers, and alternative financing solutions for reserves, organic growth has been challenged by the lackluster growth in the traditional life insurance market. Life insurance premium growth in 2016 and beyond is expected to remain in the low-to-mid single digits. Additionally, reinsurance pricing for commodity products, such as older books of in-force term life business, was aggressive and is now resulting in some adverse mortality experience. Newer business, however, is more rationally priced, and in A.M. Best's opinion, the longer-term underwriting results are expected to remain within pricing guidelines.

In A.M. Best's view, while the U.S. primary life insurance market is in a low growth mode, it must be noted that this market remains the largest in the world and affords the established players, with strong franchises, the opportunity to continue to enjoy very strong renewal life reinsurance premiums, complemented by ongoing new business. These large books of in-force premium represent substantial value in terms of stable and predictable future earnings and capital generation.

Asian Reinsurance Market Remains Stable with Additional Capacity Expected

While the Asian Reinsurance market showed little change in results in 2015, market dynamics are continuing to evolve with a reduced level of rate softening, tougher reinsurance market conditions, and increased capacity expected to enter the market. Regardless of top-line or bottom-line focus, Asian reinsurers, excluding those who receive regulatory support, find it challenging to meet their target growth and profit levels. The focus continues on revenue diversification and improvement in risk management. Asian reinsurers have done well in diversifying into other revenue sources such as life reinsurance, agricultural business, co-operative business, and, in some cases, overseas reinsurance, but whether they are able to generate an adequate return on capital on the new revenue sources, especially overseas reinsurance, remains to be seen.

On the regulatory front, the cost of doing reinsurance is increasing in some key markets, requiring capital to be held locally where the risk originates. Many foreign reinsurance branches in China had to increase capital recently and will have to retain much of their profit to support the business going forward. From a capital management point of view, these foreign branches will want to utilize the enlarged capital base and retain the group's business outside China on their books as well. Other Asian markets are also in the midst of rolling out reinsurance regulation with the intention of requiring the companies to cede more risk locally.

Profile of Asian Reinsurers

One more Asian reinsurance company has made it to the list of the 2016 Top 50 Global Reinsurance Groups. For most Asian reinsurers, business from their local market represents the largest proportion of their book. Exceptions would be a few reinsurers based in Hong Kong and Singapore, where the local reinsurance market size is relatively small.

Although the competitiveness of Asian reinsurers is being challenged by an influx of capital and higher retentions maintained from primary companies, the four largest professional reinsurers in Asia: China Re Group, Korean Re, GIC, and Toa Re, were able to maintain their growth rate relative to the growth rate of the major players in their respective markets. All four adopted slightly different strategies but the key to maintaining their relevance was finding and growing alternative revenue sources.

Profitability of Asian Reinsurers

Profitability is a key area where Asian reinsurers exhibit the most difference relative to other reinsurers. Most Asian reinsurance companies have a higher portion of proportional business with variable commission in their portfolio and as a result, the combined ratio will get closer to 100% as seen for those within the 2016 Top 50 Global Reinsurance Groups. In the case of GIC, the loss ratio appears high, but relative to the large primary companies in the market, this ratio compares favorably and is further offset by strong investment income in India. A positive element of maintaining high proportional business is that the volatility of the combined ratio is extremely low, consuming less risk capital.

While this business model generally works well in Asia, it remains to be seen if the model will be sustainable in the future as the following conditions would need to hold: 1) the industry continues to grow (for the profit level to grow in line with the market), 2) investment income is high and constant (as underwriting income is not significant, this needs to be compensated by the investment income), and 3) retrocession costs need to be reasonable. For countries seen as growth markets, these conditions may still hold somewhat,

but other markets face increasing challenges given that the investment income outlook is negative and the growth rate has slowed.

The key advantages being discussed with Asian reinsurers are the local market knowledge, same language, ease of doing business, and high service levels for their clients. Ironically, none of these advantages are applicable when they seek to expand overseas. If they continue to dominate in their respective domestic markets, they might be able to generate reciprocal business, but the dominance is dwindling over time. Many of the Asian reinsurers are able to grow a limited amount of overseas business profitably, but find it difficult to go beyond that boundary.

Capitalization of Asian Reinsurers

Other than 2011, when a few companies had to strengthen balance sheets, risk-adjusted capitalization of A.M. Best-rated Asian reinsurers has remained stable over the years. Given markets are experiencing a slower growth rate relative to the past, immediate pressure on risk-based capitalization is low. While this level remains adequate for most Asian reinsurers to serve their local markets, only a few would be classified as reinsurers with a large absolute capital base in Asia. With a relatively smaller capital base, it is difficult for many Asian reinsurers to benefit from the local regulatory direction of higher domestic retention and to adopt an aggressive overseas expansion plan. Overseas business, as well as increased retention of domestic business, will exhibit higher volatility. This volatility is difficult to accept for management as well as shareholders who are used to stable performance (many Asian reinsurers show even better earnings stability compared to local direct companies).

We continue to see significant merger activity in the reinsurance market outside Asia, however, it will be difficult for Asian reinsurers to adopt this strategy other than a regulator driving consolidation within a single market where multiple domestic reinsurers operate. Thus, if companies were to adopt a strategy for a larger capital base, the capital needs to be sourced through the capital markets.

Forecast for 2016 and 2017

There are talks about a number of new reinsurance start-ups in Asia. For some, the plan is to come live for the 2017 January renewal season. As the Chinese and Indian markets have tremendous growth potential, with sizable markets and regulations favoring local companies, interest for setting up new companies will continue. Since capacity continues to rush into this market, the much-awaited hardening of the market will have to come from outside Asia.

Without a major catastrophe loss, the reinsurance premium flowing out of the country is viewed as capital outflow. For preventing capital outflow, favor is given to retain the premium inside the country. The local reinsurance company will benefit from this structure, but faces the opposite challenge when going overseas. Although there is need for the regulator to convene and discuss this issue on reinsurance regulation, this topic may not be the highest priority. Capital is not being used most efficiently. This may not be an issue in a soft market with a low cost of capital, but when the market changes, the beneficiaries may not be the Asian reinsurers.

Pressure on MENA Reinsurance Market Persists as Regional Players Produce Mixed Earnings

Insurance markets in the Middle East and North Africa (MENA) region have grown significantly over the past decade. MENA insurance premiums surpassed USD 52 billion during 2015, with the largest markets remaining Turkey, the United Arab Emirates (UAE), Saudi Arabia, and Iran. Notable growth in insurable risk has stemmed from a combination of increased insurance penetration, historically high oil prices in the years leading up to 2014, the introduction of compulsory covers for medical healthcare and liability business classes, as well as infrastructure development and increased commercial activity.

Exhibit 14

Middle East & North Africa Reinsurers – Largest MENA Reinsurers Ranked by Gross Written Premiums, 2015

(USD Millions)

Company	Abbreviation	Gross Written Premiums	Net Written Premiums
Qatar Reinsurance Company LLC[1]	Qatar Re	1,156.2	343.4
Trust International Ins & Reins Co. B.S.C. (c)	Trust Re	475.9	299.5
Milli Reasurans Turk Anonim Sirketi	Milli Re	342.3	302.5
Societe Centrale de Reassurance	SCR Morocco	256.4	186.1
Compagnie Centrale de Reassurance	CCR Algeria	237.7	137.5
Arab Insurance Group (B.S.C.)	ARIG	220.4	202.9
Saudi Reinsurance Company	Saudi Re	214.6	201.3
Hannover ReTakaful BSC (c)	Hannover ReTakaful	184.8	177.8
Kuwait Reinsurance Company K.S.C.P	Kuwait Re	130.8	114.1
Arab Reinsurance Company SAL	Arab Re	79.3	61.4
Emirates Retakaful Limited	Emirates Re	62.7	58.6
Societe Tunisienne de Reassurance	Tunis Re	49.8	28.3
Gulf Reinsurance Limited	Gulf Re	42.3	2.9
ACR ReTakaful MEA B.S.C. (c)	ACR ReTakaful	37.8	19.9

Notes: Excludes branches of reinsurers not domiciled in the MENA region. Premiums are not restricted to MENA region. Excludes companies for whom financial data was not available.
[1] Qatar Reinsurance is domiciled in Bermuda.
Source: A.M. Best data and research

Exhibit 14 shows the largest MENA reinsurers ranked by gross written premiums (GWP). Despite the growing presence and capacity provided by regional reinsurers, their profiles typically remain small compared with international peers. The vast majority of ceded premiums are placed in the international market, with limited risk retained by primary insurers and regional reinsurers. However, A.M. Best notes that there has been notable growth for some MENA reinsurers over recent years, with Qatar Re in particular having reported a doubling of its premium base during 2015, ranking it as number 35 among the top 50 global reinsurers. Despite this, those reinsurers exhibiting elevated growth have typically achieved this by tapping global reinsurance markets as opposed to it arising from the region.

The Landscape

The region's reinsurance markets are generally perceived as a source of expansion, with continued market liberalization and the gradual removal of sanctions from Iran expected to yield further opportunities for reinsurers. Furthermore, the robust, albeit deteriorating, profitability achieved by leading primary insurers over the last five years has enhanced the region's attractiveness to both foreign and domestic reinsurers.

The majority of markets are open with few restrictions on reinsurance operations, despite initiatives in some countries aimed at nurturing growth and the retention of business within the local market. In recent years, mandatory cessions have been important to the dynamics of reinsurance markets in Algeria and Morocco, where local players are or have been obliged to place

a component of their reinsurance program with state-backed reinsurers. This typically bolsters the government's involvement and participation in local insured risks and is often a mechanism aimed at supporting the country and its insurance sector in the event of natural catastrophes.

Many MENA markets are also perceived to have relatively benign exposure to natural catastrophe events, particularly for risks emanating from the Gulf Cooperation Council (GCC) countries of Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the UAE. This enables reinsurers to establish geographically diverse underwriting portfolios without encountering significant earnings volatility driven by natural catastrophe exposure. This is attractive for domestic reinsurers, as well as foreign reinsurers looking to complement their existing portfolios with less catastrophe-prone business.

International reinsurers also continue their supporting role in the market, providing capacity as well as technical expertise to assist in the underwriting of increasingly sophisticated and high-value risks. Their support includes surveying expertise, pricing models, and risk management/mitigation techniques. A significant contributor to premium growth in the region has stemmed from the expansion of "big ticket" commercial and industrial risks, for which the direct writers and regional reinsurers are typically only capable of supporting a minimal retention. This reflects the fact that primary insurers and regional reinsurers alike usually lack sufficient underwriting capacity and balance sheet size to retain these large-scale risks within their markets.

However, despite this seemingly attractive and prosperous reinsurance landscape, there are a number of prevailing issues and challenges that reinsurers must contend with. These include:

- The continual influx of capacity, driven by both domestic and foreign reinsurers, as well as capacity on offer from primary insurers participating on facultative risks;
- Increased frequency of large losses, particularly from property, engineering, and energy;
- A prolonged period of low oil prices affecting insurable risk and investment markets;
- Political instability and social unrest in the region;
- Low insurance premium rates compared with other emerging markets;
- Weak risk management and mitigation practices across many industries impacting the quality of assumed risks.

The influx of capacity in the region and the resulting prevailing competitive market conditions that have grown ever fiercer over the last three years presents one of the most significant issues. The abundance of capacity and weak pricing conditions have resulted in technical performance becoming increasingly strained for many regional reinsurers, with this also having been exacerbated by an uptick in the frequency of medium-to-large losses in the region. In particular, large losses emanating from property, commercial, and energy lines have added pressure to a number of reinsurers' technical results during 2015 and the first half of 2016. These classes of business continue to be picked up by the regional and global reinsurance market, given local direct writers' limited capacity and technical ability to underwrite and retain such large risks. In addition, the high levels of reinsurance commission on offer to direct writers from assuming reinsurers has made it attractive for direct writers to embrace low-risk strategies by ceding these risks in exchange for generous inwards commissions.

A further weight on the minds of regional reinsurers is the medium-term effect of the fall in global crude oil prices seen over recent years, and the resulting deterioration in medium-term economic forecasts. While the region's economies displayed relatively strong levels of resilience to the 2008 global financial crisis, the fact that oil production and refinement is at the core of many economies in the region means that the impact and severity of a prolonged period of low hydrocarbon prices could be significantly more profound. Significant growth in gross premium revenues over the last decade has stemmed from an increase in insurable

risk, in part fuelled by government and private sector investment in energy, infrastructure, and industrial development projects in the region. Going forward, there is recognition by many market participants that both private and public investment may now slow from their historical levels, leading to potential reductions in insurable risks for property, engineering, and construction lines.

Overall, while the size and sophistication of the region's insurance markets have increased notably over the past decade, it remains both developing and dependent on international reinsurance support, with regional reinsurers generally acting in a follower capacity. Furthermore, reinsurance capacity (both from international and regional reinsurers) remains well in excess of local demand, resulting in the continued exacerbation of the current competitive pricing environment.

Domestic Reinsurers – Technical performance remains a mixed bag in 2015; but pressure persists for most

In A.M. Best's view, the strategies and profiles of the region's reinsurers vary significantly. Some benefit from compulsory cessions, while others are dependent on proportional business. In addition, some are actively shifting to non-proportional portfolios, and there are those seeking geographical diversification.

As a result, the technical performance in 2015 of the region's reinsurers differs considerably. There are some participants that have exhibited strong and sub-100% non-life combined ratios that follow notable improvements compared with 2014, and then there are those that have exhibited deteriorating technical performance with combined ratios well in excess of the 100% threshold. Overall, A.M. Best's composite group of MENA reinsurers (**Exhibit 15**) have illustrated a positive shift in non-life technical performance, with the group achieving a weighted-average combined ratio of 96% during 2015, an improvement from 101% produced in 2014. While this improvement has demonstrated a positive trend in underwriting activities, the performance lags significantly behind the global reinsurance market, where many reinsurers have achieved combined ratios below 90% in what can still be viewed as fiercely competitive markets, albeit in the absence of material catastrophe losses.

Exhibit 15
Middle East & North Africa Reinsurers – Non-Life Underwriting Ratios
(%)

		Loss Ratio				Combined Ratio			
Company	**Country**	**2013**	**2014**	**2015**	**5yr Av.**	**2013**	**2014**	**2015**	**5yr Av.**
Qatar Re	Bermuda	82	84	68	86	111	103	87	108
Trust Re	Bahrain	63	66	63	65	96	98	96	96
Milli Re	Turkey	79	83	88	86	113	116	120	117
ARIG	Bahrain	63	67	66	65	99	104	109	103
CCR Algeria	Algeria	47	40	47	45	76	72	79	76
SCR Morocco	Morocco	28	55	54	51	67	95	92	88
Saudi Re	Saudi Arabia	119	75	58	77	154	109	80	107
Kuwait Re	Kuwait	70	68	60	67	97	106	95	98
Arab Re	Lebanon	72	78	69	71	105	113	99	103
Emirates Re	UAE	-	67	64	N/A	-	96	97	N/A
Tunis Re	Tunisia	50	58	51	55	98	100	91	99
ACR ReTakaful	Bahrain	28	21	74	100	189	45	121	150
Average		**65**	**68**	**66**	**71**	**99**	**101**	**96**	**102**

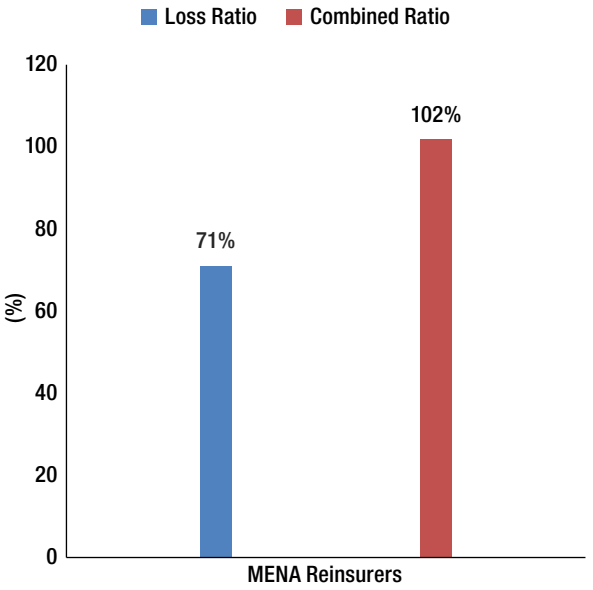
Notes: Excludes companies for whom financial data was not available. Takaful Re is consolidated into Arab Insurance Group (B.S.C.). All averages are calculated on a weighted basis.
Source: A.M. Best data and research

Those reinsurers that have achieved improved technical performance during 2015 are typically those participants that have large and relatively diverse portfolios, both by line of business and territory. In addition, a well-performing life portfolio for a handful of them has assisted in offsetting the more profound underwriting pressure that exists in the non-life market. While the life reinsurance market remains small, income has remained stable and to some degree has reduced volatility in those reinsurers' profiles. Furthermore, those participants that continue to outperform the market average technical performance, such as CCR Algeria and SCR Morocco, have benefitted from compulsory cessations and strong local market presence, with this business not subject to the same level of competitive pressures as open market business. Furthermore, 2015 can also be marked as a year where some reinsurers have started to reap the rewards of improved underwriting results through enhanced risk selection and the pruning of underperforming business segments and territories. However, A.M. Best does note that with the exception of the profitable North African markets, the MENA region for both domestic and foreign reinsurers has continued to underperform, with most companies producing underwriting losses.

For those reinsurers that have experienced weakening technical performance during the year, and also to some extent the stronger performers as well, 2015 saw an unprecedented increase in the frequency of large losses. As discussed later in this report (see the section, "Frequency of Large Losses Raises Concerns over Risk Management Practices"), the incidence of large property, commercial and energy losses during the year, relative to previous experience, has increased notably in the region. This has resulted in deteriorating loss ratios for some and added further pressure to overall 2015 technical performance. Those companies that have been most affected by increased loss experience are typically smaller reinsurers with less developed and diverse profiles, where there is a lower tolerance for the balance sheet to absorb a single large loss (**Exhibit 16**).

Exhibit 16

Middle East & North Africa Reinsurers – Five-Year Average Non-Life Underwriting Ratios (2011-2015)



Notes: Excludes companies for whom financial data was not available.
Source: BESTLINK – *Best's Statement File – Global*

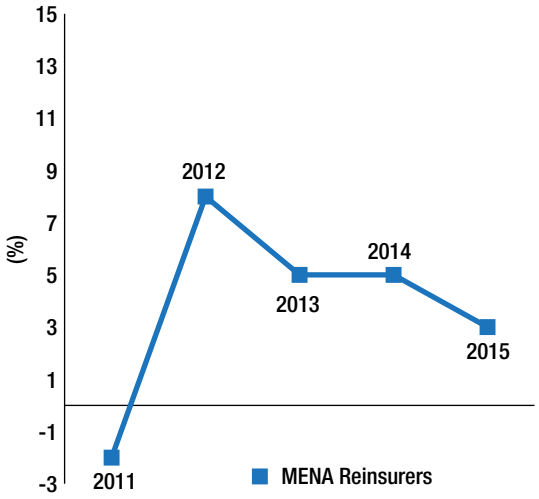
Furthermore, for some of the newer market participants with evolving business profiles (typically those established since 2005), the competitive nature of the region has continued to weigh on performance. A.M. Best attributes this to both higher loss and expense ratios for the new entrants. In part, this is a factor of the level of competition in the region, which has seen many of the newer entrants writing business at lower rates in order to penetrate the market and grow their profiles. In addition, the typically smaller scale and start-up costs have resulted in higher expense burdens. Conversely, those long-established reinsurers have tended to maintain stable expenses, benefitting from economies of scale and, in some cases, have been supported by good quality and higher margin business generated through compulsory market cessions. Furthermore, the larger-scale operations of the established participants typically afford a greater ability to absorb large losses.

With technical performance continuing to be pressured for many regional reinsurers, a significant driver of overall operating results and return on equity ratios continues to be investment performance. For A.M. Best's composite group of regional reinsurers, combined

Exhibit 17

Middle East & North Africa Reinsurers

(Return on Equity Ratios)



Notes: Excludes companies for whom financial data was not available.
Source: BESTLINK – *Best's Statement File – Global*

non-technical operations accounted for 88% of overall operating profits in 2015, with technical operations only accounting for 12%. With earnings so heavily dependent on investment income, and given the weak interest rate environment and low-yielding investment markets seen in recent years, return on equity ratios for regional reinsurers remains in the low single digits. Over the last three years to 2015, while return on equity ratios have been relatively stable, they have remained lacklustre at between 3% and 5% (**Exhibit 17**). Given that the region is viewed as an emerging market, these returns compare unfavourably to mature market reinsurers, which have typically been yielding high-single-digit to low-double-digit return on equities over the same period.

With this in mind, the overarching decision for all reinsurers remains whether to grow their profiles, which, given the current competitive environment, is likely to put further pressure on underwriting margins, or whether to focus on profitability at the expense of profile and market share. This decision remains all the more pertinent for more recently established reinsurers, which need to grow in order to offset high start-up expenses.

An Uphill Struggle for Retakaful

The rise in takaful (shari'a-compliant insurance) operators in the region has led to an increased number of retakaful (shari'a-compliant reinsurance) operators being established. The vast majority of retakaful operators are subsidiaries or branches of large conventional reinsurers, who see retakaful as a distribution channel to attract new business or maintain relationships with takaful cedants.

The fortunes of retakaful operators have largely mirrored the difficulties faced by their takaful cedants. In particular, the poor technical performance of takaful operators has translated into underwriting losses for retakaful companies. Those retakaful operators who write a balanced portfolio of conventional and takaful business have tended to perform better, while those that have sought to only provide cover to takaful operators have suffered greatly. This has resulted in a number of retakaful companies either going into run-off or drastically downsizing their operations.

Retakaful operators have also struggled with establishing strong franchises in the region. An element of this is linked to the inability of most takaful cedants to gain traction in their respective markets. However, for Takaful operators and their respective shari'a boards, a key consideration is the quality and availability of retakaful counterparties to provide protection to the policyholders' fund, and as such at present takaful cedants continue to choose traditional reinsurance capacity over retakaful capacity. Takaful operators cite a number of reasons for this, including retakaful operators having insufficient capacity to support high value risks, generally weaker financial strength ratings, and, to some extent, the service and assistance provided by these counterparties. In A.M. Best's opinion, for retakaful companies to succeed in developing their scale and profile, the shari'a boards of takaful operators need to increase their emphasis on requiring management to seek shari'a-compliant capacity before approaching conventional reinsurers.

Low Oil Prices; Stagnating Insurable Risk

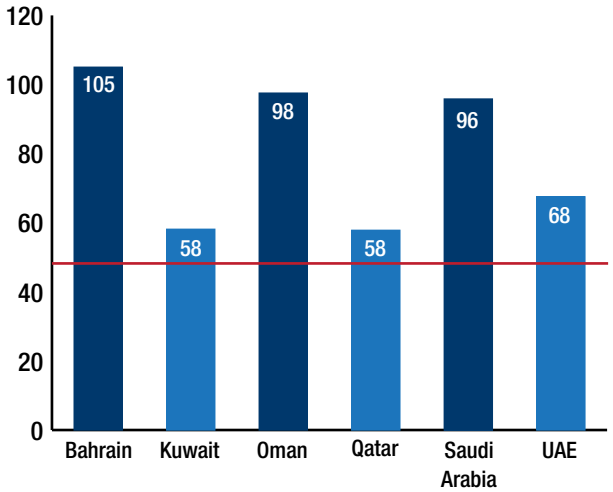
In the years leading up to 2014, historically high oil prices combined with stable global demand supported significant government expenditure by oil-rich countries, particularly those of the GCC. With hydrocarbon prices having fallen notably over the last 18 months, the impact on the region's economies is varied, with the GCC member countries most dependent on oil and gas revenues.

Exhibit 18 highlights the challenge that these countries face, with the disparity between current oil prices and the fiscal breakeven of their existing budgets. However, while this presents a potential issue over the long term, countries such as Saudi Arabia, Kuwait, Qatar, and the UAE have either accrued significant current account surpluses and/or created other revenue streams to support their existing fiscal and economic budgets over the short term. Notwithstanding this, A.M. Best notes that some countries, including Saudi Arabia, are running existing budgets on accrued cash reserves, a clearly unsustainable approach over the medium term. Additionally, for those GCC countries that have a high dependence on oil revenues but have not accrued the same level of surpluses, such as Bahrain and Oman, the negative impact of low hydrocarbon prices is even more immediate.

Exhibit 18

Gulf Cooperation Council (GCC) Fiscal Breakeven Price (2016 Projections) and Jun. 2016 Monthly Average Price of Brent Crude

(USD per Barrel)



Sources: International Monetary Fund "Regional Economic Outlook – Middle East and Central Asia" October 2015 and A.M. Best data and research.

Over the last few decades, direct and indirect income from hydrocarbon production has been used to finance engineering projects, creating a demand for skilled labour and enabling generous state-backed benefits. The result has been a general influx of business activity and prosperity across the region. For reinsurance companies with operations in the region, this has resulted in a continual influx of new business generation and strong growth in insurable risk, particularly from property, engineering, and construction lines of business. Infrastructure and engineering projects in the region, which have been among some of the most spectacular and complex in the world, have required significant reinsurance participation from both regional and global providers. However, with the very real concern that both public and private investment in the region may be subject to a slowdown, reinsurers that typically assume the majority of these "big-ticket" risks from direct writers may no longer be able to achieve gross or net premium growth at levels previously experienced.

Moreover, while reinsurers typically have more conservative investment portfolios than direct writers in the region, these companies are not immune from investment market performance, which is also subject to sensitivity from low oil prices and the resulting economic environment. In particular, for those regional reinsurers that have exposure to equity and real estate assets, it is highly conceivable that investment markets, and consequently the non-technical performance of these companies, may be adversely impacted. With the expectation that business prosperity and economic indicators are set to weaken, there is potential for a fall in investor confidence, which may lead to a deterioration or fluctuations in market performance of equity and real estate assets. However, A.M. Best notes that reinsurers operating in the region tend to have more diverse and less risky investment portfolios, with only limited exposure to volatile asset classes of equity and real estate. This will go some way to offset A.M. Best's concern.

Frequency of Large Losses Raises Concerns over Risk Management Practices

When discussing the risk landscape for reinsurance sectors in most parts of the world, it is customary to begin by talking about the latest natural catastrophe to hit the market. However, for the MENA reinsurance sector, catastrophe activity remains relatively immaterial. There have been some small events in the past decade, such as the UAE floods in early 2016 and also the flooding in Oman following cyclone activity in the North Indian Ocean in 2015, but for the most part, catastrophe activity has been contained.

Despite the limited number of catastrophe events to date, it must be noted that the past is no guarantee of the future. Furthermore, although earthquake, windstorm, and flood exposure is believed to be relatively minimal in the region, should even a small event occur in a highly developed and densely populated area such as Dubai, the cost to reinsurers could be significant. Conversely, while the region's reinsurers have not been hit by local catastrophes, a handful of players have encountered losses from worldwide events that occurred between 2010 and 2012, following their participation in international programs.

For the region's reinsurers, the most severe losses tend to emanate from commercial risks, including property, engineering, marine, and energy lines. In particular, large property losses, including the Address Hotel fire in Dubai, the Quarayyah Power Plant loss in Saudi Arabia due to a sandstorm, and the Aqua Power fire event (also in Saudi Arabia), all of which occurred during 2015 and which individually have gross loss estimates between USD 200 million to USD 300 million, have driven increased pressure on reinsurers' technical performance. These particular events have not only generated meaningful property losses for the market but have also led to material business interruption exposures.

Furthermore, there is a tendency for reinsurers to price commercial property risks in the region at relatively low "rates-on-line" compared with equivalent risks in other emerging markets. While part of the difference can be attributed to the lower levels of catastrophe activity experienced in the region, it is not always clear whether local risk factors such as culture, less onerous regulatory standards, and internal loss mitigation practices for these large commercial property exposures are fully considered when setting prices, terms, and conditions.

However, following recent losses due to fires affecting skyscrapers in the region, most notably the Address Hotel in Dubai on New Year's Eve in 2015, there has been some recognition by the market of the elevated risk factors attached to some of these buildings. More specifically, it has been identified that various types of aluminium cladding that was commonly utilized in the exterior construction of these high-rise towers in the years leading up to 2012 presents a significant fire risk. The issue arises from the composite cladding panels that were constructed using two pieces of aluminium cladding sandwiched together with an insulative core, typically comprising high levels of polymer, which is highly flammable. The principal problem with this is that while fire breaks between floors are functioning as expected in these buildings, if the fire reaches the exterior of the structure, the aluminium cladding's core is igniting and causing the fire to spread rapidly up the exterior of these buildings, breaching multiple floors.

In the UAE, the market has responded to these major fire losses with one leading insurance company calling a market meeting between local insurers as well as regional and international reinsurers to discuss these risks and the seemingly unacceptably low premium rates these risks have previously been attracting. As a result of this meeting in March 2016, a market understanding was reached to increase premium rates to a minimum of 0.5 per mille for properties with combustible cladding and 0.25 per mille for buildings above 20 floors with fire-retardant cladding. However, while this can be viewed as a step forward to improve premium rates on these higher-risk buildings, these types of agreements only work if all market players adhere to agreed parameters.

The recent frequency of large losses has also reignited the speculation that risk management practices from ceding companies may not be as robust as companies in mature markets. While reinsurers undertake regular surveys and inspections, the moral hazard of human negligence, weaker regulation and cultural differences is extremely hard to factor into the pricing of these risks. Having said this, the attitude of governments and regulators has been positive, with more robust requirements and controls required by the cedants. However, for the market to change, lead reinsurers must promote better practices and pricing to cater for the inherent deficiencies within the market.

Financial Hubs and the Presence of Lloyd's

The creation of financial hubs such as the Dubai International Financial Centre (DIFC) and Qatar Financial Centre (QFC), alongside well-regulated offshore centres (including Bahrain under the Central Bank of Bahrain), have helped to open the market and encourage international players to establish a physical presence in the region, in particular for internationally recognized reinsurers and brokers, many of whom have strategies that acknowledge the importance of operating under a "hub and spoke" business model, enabling "global" products and services to be offered "locally" to clients. Close proximity to markets is also increasingly being recognized as a fundamental mechanism for insurers and reinsurers to better understand the characteristics of the markets they are operating within and ultimately the risks they are underwriting.

A significant milestone demonstrating the success of financial hubs was reached during March 2015 when Lloyd's of London established an underwriting platform in the DIFC.

This action follows Lloyd's 2025 Vision strategy, which includes a mandate to expand their presence in growing and developing markets around the world. The creation of a regional office also demonstrates Lloyd's commitment to strengthening its relationships and to developing a deeper risk insight in MENA's regional market. The Lloyd's office established in the DIFC brings the number of Lloyd's businesses trading in the region to ten – MS Amlin, Argo Global, Beazley, XL Catlin, Liberty, Markel, Talbot, Visionary, Starr, and Munich Re.

Following the success of financial hubs such as the DIFC, the model has been replicated in other countries such as Morocco, where Casablanca Financial City (CFC) has been established. A number of regional reinsurers have expressed an interest in using the CFC to service the expanding African insurance markets.

Ratings Issues for MENA Reinsurers

All A.M. Best-rated reinsurers domiciled in the MENA region have "B+" (Good) Financial Strength Ratings (FSRs) or above. The highest rating assigned at present is an FSR of "A" (Excellent). The outlook for the FSRs and Issuer Credit Ratings (ICRs) on the vast majority of the companies is stable or positive (see **Exhibit 19**).

Reinsurers domiciled in the region are generally well-capitalized, with existing participants strengthening their capital positions through retained earnings and more recent market entrants typically holding surplus capital to support their expanding franchises. Capital requirements are largely driven by underwriting risk, with most reinsurers adopting conservative and diverse investment profiles and high net retentions that minimize exposure to counterparty credit risk.

Operating performance remains profitable for most reinsurers in the region; however, for many this reflects robust investment income that has offset increasingly pressured underwriting earnings. The persistence of thin technical margins coupled with an increase in

Exhibit 19
Middle East & North Africa Reinsurers – A.M. Best-Rated Entities
Ratings as of Aug. 26, 2016.

Domicile	Company	AMB #	Best's Financial Strength Rating (FSR)	Best's Long-Term Issuer Credit Rating (ICR)	Best's FSR & ICR Outlook	FSR & ICR Rating Action	Rating Effective Date
Algeria	Compagnie Centrale de Reassurance	090777	B+	bbb-	Stable	Affirmed	Jul. 22, 2016
Bahrain	ACR ReTakaful MEA B.S.C. (c)	090059	B++	bbb+	Stable	Downgraded	Dec. 18, 2015
Bahrain	Arab Insurance Group (B.S.C.)	085013	B++	bbb+	Positive	Affirmed	Dec. 23, 2015
Bahrain	Trust International Insurance & Reinsurance Company B.S.C. (c)	086326	A-	a-	Stable	Affirmed	Aug. 18, 2016
Bermuda	Qatar Reinsurance Company LLC	092611	A	a	Stable	Affirmed	Dec. 17, 2015
Kuwait	Kuwait Reinsurance Company K.S.C.P	085585	A-	a-	Stable	Affirmed	Jan. 14, 2016
Lebanon	Arab Reinsurance Company SAL	089190	B+	bbb-	Stable	Affirmed	Dec. 17, 2015
Morocco	Societe Centrale de Reassurance	084052	B++	bbb	Stable	Affirmed	Aug. 25, 2015
Tunisia	Societe Tunisienne de Reassurance	083349	B+	bbb-	Stable	Affirmed	Jul. 21, 2016
Turkey	Milli Reasurans Turk Anonim Sirketi	085454	B+	bbb-	Negative	Affirmed	Jun. 24, 2016
United Arab Emirates	Emirates Retakaful Limited	093190	B++	bbb+	Positive	Affirmed	Jun. 16, 2016
United Arab Emirates	Gulf Reinsurance Limited	088930	A-	a-	Stable	Affirmed	Jun. 24, 2016

Sources: BESTLINK – *Best's Statement File – Global*, A.M. Best data and research

large loss experience from property engineering and energy lines has resulted in diminished underwriting results for many regional reinsurers in 2015. Given that technical margins in the region have been declining in recent years, regional reinsurers are looking further afield, mainly to the Indian Subcontinent, the Asia-Pacific territories, and North Africa to search for higher margin business that compliments their existing portfolios. While this can be viewed as a positive step, aimed at improving technical performance, there is undoubtedly execution risk associated with expanding into unfamiliar markets. This is particularly true given the higher anticipated catastrophe risks that may be assumed by writing new business, and which could result in unexpected volatility in company earnings.

With premium rates in the market expected to remain stagnant over the medium term, regional reinsurers have sought to improve their approach to risk selection and A.M. Best expects them to continue to hone their risk appetites even further over the coming years. Many regional reinsurers have invested significantly in advancing their risk management functions, which not only enables them to improve their underwriting practices but more importantly, limits earnings volatility by understanding aggregation and accumulation of large losses. An increasing focus on data quality, surveying techniques, and risk mitigation practices is assisting reinsurers in improving their underwriting approach.

Overall, A.M. Best believes that while MENA-domiciled reinsurers continue to target growth in presence and penetration in the region, the majority of companies remain small when compared with their international counterparts. In addition, with the persistence of headwinds, including deteriorating economic conditions, low premium rates and elevated loss experience on property and commercial risks, reinsurers' earnings are expected to be put under increased pressure over the medium term. Technical performance has remained pressured for most regional reinsurers over the last three years, and, as such, remains a key rating consideration for A.M. Best. However, improving enterprise risk management goes some way toward reducing earnings volatility.

Turbulent Economic Conditions Fail to Deter Interests in the African Reinsurance Markets

2015 proved to be a challenging year for Africa's reinsurance markets. A heightened country risk backdrop across the region threatened to stall the progress of prosperous economic conditions and stable political landscapes that had driven the continent's growth over the recent decades.

Until recently, with average gross domestic product (GDP) growth rates far outpacing much of the rest of the world, the region presented an extremely attractive environment for investors seeking enhanced returns. However, shifts in the economic and political landscapes have threatened to diminish interest across the continent, compromising growth in the various reinsurance markets, and as the ease of doing business has diminished, investors have become increasingly risk-averse.

Plummeting commodity prices have affected many of the region's economies, particularly for those territories that are highly dependent on the hydrocarbon industry. These countries suffered a substantial loss of export revenues due to the global disparity between supply and demand that saw oil prices tumble to under USD 30 per barrel from the highs of approximately USD 110. The uncertain economic conditions thus impacted infrastructure deals, with a subsequent effect on (re)insurance demand, as the availability of insurable assets reduced.

China's economic slowdown had a consequential effect on the region through reduced demand for its raw material exports. Additionally, the U.S. Federal Reserve's decision to tighten its monetary policy, along with the uncertainty associated with impending elections and the trend of depreciating currencies across the continent, contributed to weakened perceptions regarding Africa's economic prospects.

Despite these challenges and the negative implications for the financial strength of its reinsurers, the region's domestic markets have continued to experience a relativity stable flow of merger and acquisition (M&A) activity (**Exhibit 20**). Interest in the market has continued

Exhibit 20

Reinsurance – Sub-Saharan Africa – Mergers & Acquisitions (2015 to present)

Purchaser	Domicile of Purchaser	Target	Domicile of Target	Status	Date	Deal Value	Notes
Deutsche Investitions- und Entwicklungsgesellschaft	Germany	PTA Reinsurance Co. (ZEP-RE)	Kenya	Completed	Jul-2016	USD 14m	Deutsche Investitions- und Entwicklungsgesellschaft increases its shareholding in ZEP-Re to 14.93%.
Kenya Reinsurance	Kenya	PTA Reinsurance Co. (ZEP-RE)	Kenya	Completed	Jun-2016	USD 20m	Kenya Re increases its shareholding in ZEP-RE.
Capital Alliance Private Equity IV Ltd.	Morocco	Continental Reinsurance plc	Nigeria	Completed	Feb-2016	n/a	SAHAM Finances reduces its shareholding in C-Re Holding Ltd. (the majority owner of Continental Insurance).
SAHAM Finances	Morocco	Continental Reinsurance plc	Nigeria	Completed	Sep-2015	n/a	SAHAM Finances announces the acquisition of a 53.6% share in Continental Re.
International Finance Corporation	United States of America	PTA Reinsurance Co. (ZEP-RE)	Kenya	Announced	May-2015	USD 20m	IFC announces deal in May 2015, then reviewed the deal in November 2015.
Fairfax Financial Holdings	Canada	African Reinsurance Corporation	Nigeria (Pan-Africa)	Completed	Mar-2015	USD 61m	Fairfax Financial Holdings completes its acquisition of a 7.15% stake in African Reinsurance Corporation, the Pan-African reinsurer based in Nigeria.
AXA Group	France	African Reinsurance Corporation	Nigeria (Pan-Africa)	Completed	Mar-2015	USD 61m	AXA Group completes its acquisition of a 7.15% stake in African Reinsurance Corporation, the Pan-African reinsurer based in Nigeria.

Source: A.M. Best data and research

from regional and international players that promise capital support, technical expertise, and substantial overseas experience, thereby supporting the domestic markets in developing frameworks that mirror global standards.

A.M. Best expects M&A activity on the continent to continue. Low penetration rates and the associated enticing growth prospects, together with the evolving regulatory landscape, are anticipated to remain attractive to stakeholders that are interested in Africa as a longer-term investment strategy. In particular, overseas (re)insurers are likely to continue to view the region's markets favorably in terms of offering a viable strategy of diversification into less catastrophe-prone environments, supporting mandates to expand footprints and optimize returns. Nonetheless, A.M. Best notes that these stakeholders represent a threat to the development of domestic reinsurance markets.

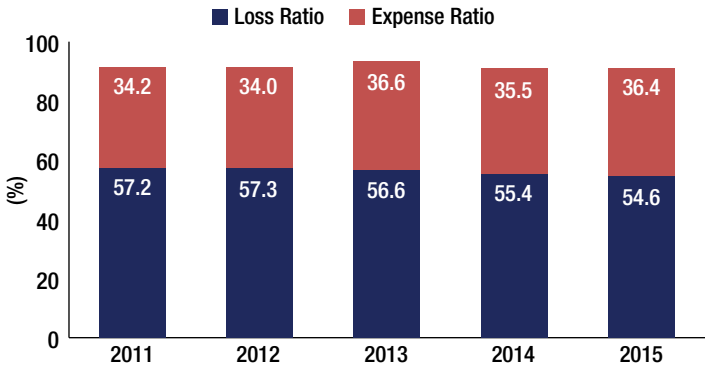
In general, many overseas (re)insurance groups entering Africa's markets utilize reinsurers (or captives) that allow for the centralization of their reinsurance needs. The entrance of these investors into the shareholding structures of the region's (re)insurers means that these organizations are able to repatriate premiums derived from their affiliates to their domiciles, subject to adherence with local domestication practices. Furthermore, these investor organizations tend to be excellently capitalized, thereby able to support the capitalization needs of their subsidiaries, as and when required, and hence the higher retention of risks written on these entities' accounts. The benefit of such a capital management strategy and financial flexibility means that less reinsurance risks are available to the open market, thus intensifying competitive conditions, given the overcrowded nature of the domestic segments and the contracting universe of available insurable assets.

In addition to foreign (re)insurance groups entering the region's insurance segments, A.M. Best has observed a number of London market players establishing operations outside of Africa with the objective of accessing (re)insurance risks in the region, further reducing opportunities open to domestic reinsurers. In 2016, the Bermudan/London-based Aspen group established a reinsurance hub in Dubai to access both the Middle East and Sub-Saharan Africa. The group has also partnered with MEARC Management (Pty) Ltd, the South African-based financial services provider that also operates as a Lloyd's-accredited Open Market Correspondent, to provide reinsurance cover to the market. Additionally, XL Catlin has established a reinsurance unit providing facultative and treaty reinsurance in Africa from the London market.

Rating Drivers of African Rated Reinsurers Continue to Meet Expectations Despite Market Challenges

Exhibit 21

Reinsurance – Sub-Saharan Africa – Technical Performance of A.M. Best-Rated Reinsurers (Non-Life)



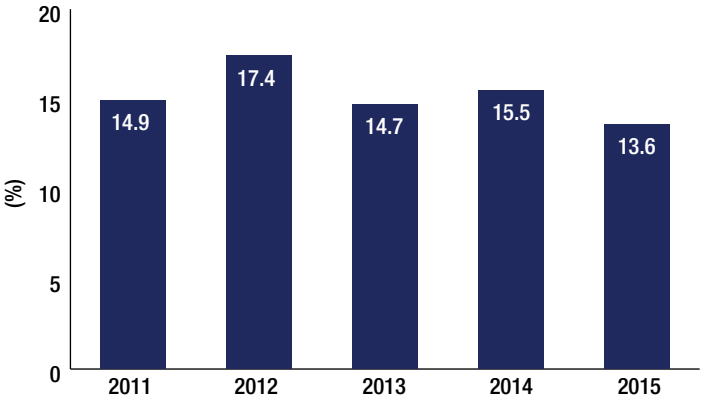
Notes: 2015 year excludes Continental Re, CICA Re & Ghana Re as financial information is currently unavailable for these companies as at year-end 2015.
Sources: BESTLINK – *Best's Statement File – Global*, A.M. Best data and research

The results of A.M. Best-rated reinsurers in the region remained at a strong level in 2015, in spite of the economic difficulties. Overall performance was supported by strong and relatively stable underwriting results, although combined ratios, which remained positive, were subject to large variations between companies, depending on their domicile and strength of their business profiles. In most instances, companies benefitted from substantial investment returns (emanating from their relatively conservative investment profile) reflective of the high financial risk environment associated with the region.

Exhibits 21 and 22 illustrate the non-life technical performance indicators and

return on equity produced by A.M. Best-rated reinsurers, based on the consolidation of their financial accounts for the period 2011 to 2015. Although most reinsurers underwrite life business, this portfolio generally remains a small segment of their operations, due to the underdeveloped nature of this segment of the market. Life business has therefore not been explicitly considered within this analysis.

Exhibit 22
Reinsurance – Sub-Saharan Africa – Return on Equity of A.M. Best-Rated Reinsurers (Non-Life)



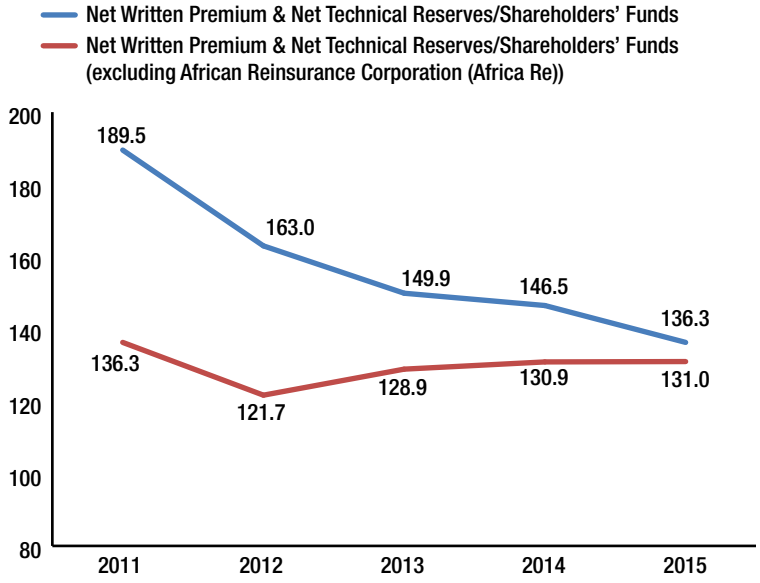
Notes: Financial information from CICA Re and Ghana Re is currently unavailable for these companies as at year-end 2015.
Sources: BESTLINK – *Best's Statement File – Global*, A.M. Best data and research

The technical performance of A.M. Best-rated reinsurers continued to reflect a number of factors. Those entities that maintain a sole focus on Africa, and with a geographically broad spread of risk (as well as utilizing an evolving risk management framework), tend to produce better and more stable technical results. In contrast, companies that maintain international profiles can be susceptible to the volatile loss environments of those markets. The majority of reinsurers operating in Africa and those rated by A.M. Best are small by global standards and therefore are unable to achieve economies of scale. Thus expense performance appears worse relative to global reinsurers.

Nonetheless, the double-digit return on equity generated by A.M. Best-rated reinsurers remains robust, in spite of the impact of the global softening in reinsurance conditions and the high level of capital maintained by these entities.

A.M. Best-rated reinsurers in the region maintain substantial capital buffers within their risk-adjusted capitalization. This supports their abilities to absorb shock losses arising as a result of the region's volatile operating environment. **Exhibit 23** illustrates A.M. Best-rated reinsurers' utilization of capital to support their underwriting, through the simplistic approach of comparing the volumes of net written premiums and technical reserves to shareholders' funds. If African Reinsurance Corporation (Africa Re) is excluded from the population of rated reinsurers, the underwriting leverage of these companies is seen to have remained at a relatively stable level as growth in capital has supported these entities' expansion.

Exhibit 23
Reinsurance – Sub-Saharan Africa – Underwriting Leverage of A.M. Best-Rated Reinsurers (Non-Life)



Notes: Financial information from CICA Re and Ghana Re is currently unavailable for these companies as at year-end 2015.
Sources: BESTLINK – *Best's Statement File – Global*, A.M. Best data and research

Africa Re, the largest reinsurer on the continent, which appears in A.M. Best's Top 50 ranking of global reinsurers by GWP, possesses a highly diversified portfolio, due to its uniquely privileged access to business. As a U.S. dollar reporting organization, Africa Re is exposed to foreign exchange fluctuations, although the corporation does employ a robust asset liability matching strategy. With the ongoing depreciation in currencies experienced in many countries across the region, Africa Re's reported premiums and surplus base have been affected by the adverse movement in exchange rates. This has resulted in the decline in both its premium volumes (despite growth in local currency terms) and its surplus base, albeit at differing rates, resulting in a negative trending underwriting leverage ratio (**Exhibit 23**). Nonetheless, Africa Re remains a well-capitalized organization.

Africa's (Re)Insurance Market Dynamics Remain Largely Unchanged

A.M. Best estimates that there are between 35 and 40 reinsurers domiciled in Africa. This number is growing as lawmakers seek to supplement the capacity available to their insurance markets, with the intention of reducing premium outflows to the international reinsurance markets, thus domesticating more profits in their respective countries.

This comes against a backdrop of intensifying competitive conditions, enhanced by the participation of foreign investors in the region as they seek to expand their footprints. Additionally, pressures are also derived from the cross-border expansion strategies undertaken by regional players. These stakeholders typically maintain the objective of attaining the critical mass necessary to support their ongoing viability. Corresponding to a rise in the discovery of oil reserves in recent years, protectionist policies have been implemented to ensure that some insurance profits are maintained within their respective economies. These policies further constrain the development of Africa's reinsurers, particularly those that seek cross-border growth.

The establishment of national reinsurers remains a key feature utilized by lawmakers to support their objectives. These national reinsurers are typically government or quasi state-owned entities that are entitled to the first refusal of compulsory treaty business arising from the country of domicile. In 2016, Ethiopian Reinsurance SC (Ethiopia Re) is expected to be formally established as Ethiopia's first reinsurer, with share capital of Birr 1 billion (approximately USD 50 million). The company's formation comes at a time when the country is noticeably in the process of liberalization, which will likely lead to an influx of investors that seek to capitalize on the country's prospects. It remains unclear whether Ethiopia Re will benefit from mandatory cessions, as has been the trend noted with the establishment of other national reinsurers in more recent years.

At the same time, regulators are raising minimum capital requirements to more onerous levels. The intention is to improve the financial stability of their respective insurance sectors, but an indirect effect of this is to restrict the participation of regional reinsurers. Pools are also increasingly being utilized as an alternative means to retain business. For example, the Nigerian Insurance Association established the Energy and Allied Risks Insurance Pool of Nigeria in 2015. Managed by Africa Re, the pool initially consisted of 14 members with the initial capacity to underwrite USD 4 million of oil and energy risks, based on the pool members' contribution of 40% of their subscribed lines. Despite the use of pooling arrangements to support underwriting in the region, in reality, the capacity that these pools offer remains small relative to the scale of many of the large risks underwritten.

Local (re)insurers remain heavily reliant on reinsurance to support their underwriting strategies. In particular, for high value corporate risks, international participants continue to undertake a dominant role in supporting the capacity needs of the various segments across the region. This is a function of the low capital base of the primary and reinsurance sectors,

along with their limited underwriting capabilities and expertise required to support the high retention of risks. Therefore, international participants are able to support local (re)insurers through the provision of additional technical expertise and sophisticated underwriting skills.

Treaty reinsurance remains highly utilized by the region's markets due to the limited capacity available to the primary and reinsurance segments to support commercial risks underwriting, particularly for high-value contracts. (Re)insurers benefit from significant reinsurance commissions that supplement their earnings, which should encourage companies to focus on the quality of gross underwriting rather than targeting net profits, but in many cases prompts rapid expansion.

Despite the predominance of proportional treaties, A.M. Best continues to observe the moderate shift toward non-proportional arrangements in some markets, particularly for some high-value contracts, as (re)insurers seek to retain more of these risks on their own account, supported by growth of their surplus base. Market participants' approach to increase their risk retentions, and hence potential loss exposures, is an area of material downside risk to their financial strength.

Nevertheless, the domestic (re)insurance sectors' overall low net retention underwriting approach creates longer-term uncertainties regarding the abilities of companies to adjust business strategies in the event of the global hardening of reinsurance conditions. The international markets may well dictate the change in domestic companies' business models, with unfavourable effects on reinsurance demand.

Supranational or regional reinsurers remain an important feature in the promotion and development of the (re)insurance industries across Africa. These companies also create additional competitive pressures for local reinsurers seeking geographic expansion, owing to their often privileged positions in the markets, again limiting business opportunities to the open market. For example, Africa Re is entitled to 5% of treaty cessions derived from both insurers and reinsurers in each of its 36 member states, although in reality the corporation enjoys higher cessions given its financial strength and strong market reputation, while Compagnie Commune de Réassurance des Etats membres de la CIMA (Conférence Interafricaine des Marchés d'Assurances) (CICA RE) is eligible to receive 15% of cessions derived from companies operating in the CIMA zone.

Cross-border, and in some cases, international expansion into other emerging economies remains the strategy for most local reinsurers in their pursuit of greater diversification and critical mass. Competition is intensifying as a large number of participants compete in a small sector targeting the same risks, given the underinsured and underdeveloped characteristics of their markets. These pressures are not helped by the fragmented nature of the African market and the abundance of capital available to the region.

Move to Risk-Based Regulation Increases Opportunities for Domestic Reinsurers

Insurance market regulators across Sub-Saharan Africa are attempting to implement a risk-based regime similar to the European Union-based directive, Solvency II, with the objective of enhancing the financial stability of their (re)insurance markets and aligning regulatory oversight to that of global standards. While viewed favourably in supporting the positive perception of the markets, A.M. Best believes that it will likely be a longer-term goal for some countries, in view of the highly underdeveloped nature of their respective (re)insurance segments.

South Africa is leading the way with the implementation of its Solvency Assessment and Management (SAM) regime, which is expected to be fully implemented in 2017. This regime, which mirrors that of Solvency II, seeks to establish a risk-based framework, based on a three-pillar approach that (re)insurers must adhere to in order to strengthen the financial stability

of the industry. Certain countries, such as Kenya, are following South Africa's lead, with the implementation of a much simplified risk-based capital approach, while in other territories, regulators have issued guidelines and discussion papers for risk-based supervision with the intention of engaging and educating the sector prior to any transition.

A strengthening of solvency regulations will likely create opportunities for African reinsurers, at least in the initial stages, as reinsurance is sought as part of companies' capital management strategy, to strengthen solvency requirements. This will offset higher capital burdens associated with potentially new reserving standards for certain lines of business and the risks connected with (re)insurers' insurance, investment, and counterparty risk strategies. However, the onerous requirements of such a regime may also result in the consolidation of small-to-medium-sized players, affecting reinsurance demand.

A key challenge for regulators in these economies will be to develop cost-effective regimes, both for the (re)insurer and the regulator, which has cross-border recognition and co-operation. The ability to both educate and enforce these principles, while applying suitable penalties to companies that are non-compliant, will also be a challenge for the regulators.

Key Rating Considerations for the African Reinsurers

A number of A.M. Best-rated reinsurers maintain financial strength ratings of B+ (Good) or higher with stable outlooks (**Exhibit 24**). These reinsurers maintain strong and stable risk-adjusted capitalization, underpinned by a large and (in some cases) underutilized capital base that is supplemented by solid earnings retention and supportive capital management policies. Additionally, under stressed scenarios, the capital buffers inherent in their risk-adjusted capitalizations are expected to remain at sufficient levels relative to their current rating levels. Reinsurers will be expected to employ capital management strategies that support their business plans.

Exhibit 24

Reinsurance – Sub-Saharan Africa – A.M. Best-Rated Entities

Ratings as of Aug. 26, 2016.

Domicile	Company	AMB #	Best's Financial Strength Rating (FSR)	Best's Long-Term Issuer Credit Rating (ICR)	Best's FSR & ICR Outlook	FSR & ICR Rating Action	Rating Effective Date
Nigeria	African Reinsurance Corporation	083411	A	a	Stable	Upgraded	Jun. 10, 2016
Togo	CICA Re	093852	B	bb+	Stable	Assigned	Jan. 29, 2016
Nigeria	Continental Reinsurance Plc	078723	B+	bbb-	Stable	Affirmed	Feb. 17, 2016
Kenya	East Africa Reinsurance Company Limited	077803	B	bb+	Stable	Affirmed	Nov. 20, 2015
South Africa	General Reinsurance Africa Ltd	086651	A++	aa+	Stable	Affirmed	Oct. 28, 2015
Ghana	Ghana Reinsurance Company Limited	090035	B	bb	Stable[1]	Affirmed	Dec. 11, 2015
Kenya	Kenya Reinsurance Corporation Limited	085416	B+	bbb-	Stable	Affirmed	Dec. 17, 2015
Kenya	ZEP-RE (PTA Reinsurance Company)	078388	B+	bbb-	Stable	Affirmed	Dec. 10, 2015

[1] FSR: Stable ICR: Positive

Sources: BESTLINK – *Best's Statement File – Global*, A.M. Best data and research

As highlighted above, the technical performance of rated companies is strong, partly due to the implementation of a supportive risk management framework. Additionally, companies also benefit from the low frequency of losses associated within certain African insurance sectors, compared with levels experienced in mature global markets.

These reinsurers typically maintain established business profiles in their target markets, either benefiting from their privileged access to business via mandatory cessions, or maintain a diversified profile, thereby alleviating some of the negative pressures arising from unexpected volatility in operating conditions, particularly due to heightened country risk scenarios.

Nonetheless, the current challenges overshadowing Africa's economic and political landscape create a source of negative pressure for A.M. Best-rated reinsurers, if sustained over the mid-to-longer-term. In particular, A.M. Best believes that the following factors are key risks to the sectors' financial strength in the region:

- Exposure to financial system fragility due to the banking sector's concentration and dependence on the hydrocarbon industry.
- Utilization of an asset liability mismatching approach, as further currency fluctuations will affect these companies' liquidity requirements and ability to meet short-term obligations
- Potential liquidity constraints and erosion to risk-adjusted capitalization, owing to extended delays in premium collections as economic difficulties squeeze disposable incomes of consumers of insurance services.

To support their credit profiles prospectively, A.M. Best-rated reinsurers will need to demonstrate a risk management framework that identifies and appropriately controls and monitors these risk factors.

On a company-specific basis, reinsurers will need to be mindful that they are operating in a highly competitive environment, with pricing, terms, and conditions dictated by the softening in the wider global reinsurance markets. Additional pressures are also arising from the influx of foreign (re)insurance groups that are better capitalized and benefit from stronger credit profiles. As such, domestic participants must focus on maintaining underwriting discipline as they expand, while developing business profiles that support their ability to compete effectively under severe circumstances.

To support their longer-term viability, reinsurers will also need to consider a strategy to reduce their dependence on overseas markets for their capacity requirements. Although beneficial in softening conditions, reinsurers may likely need to adjust their business strategies if market conditions harden. Should management not have the expertise to identify and successfully execute appropriate strategies as market conditions change, financial strength could weaken.

Brazil Reinsurance Market Review

Between 2007 and 2009, Brazil was in the midst of a surge in economic growth that made it a leading emerging market and hotbed of business activity. During that time the country was awarded both the 2014 FIFA World Cup and the 2016 Summer Olympic Games. Additionally, in April 2008, Brazil was upgraded to investment grade by S&P, which was greeted by waves of foreign direct investment. Around this same time, the Brazilian government was in the process of de-monopolizing the state-controlled reinsurer IRB Brasil Resseguros and opening the reinsurance market to competition, which fueled reinsurers eager to access Latin America's largest economy.

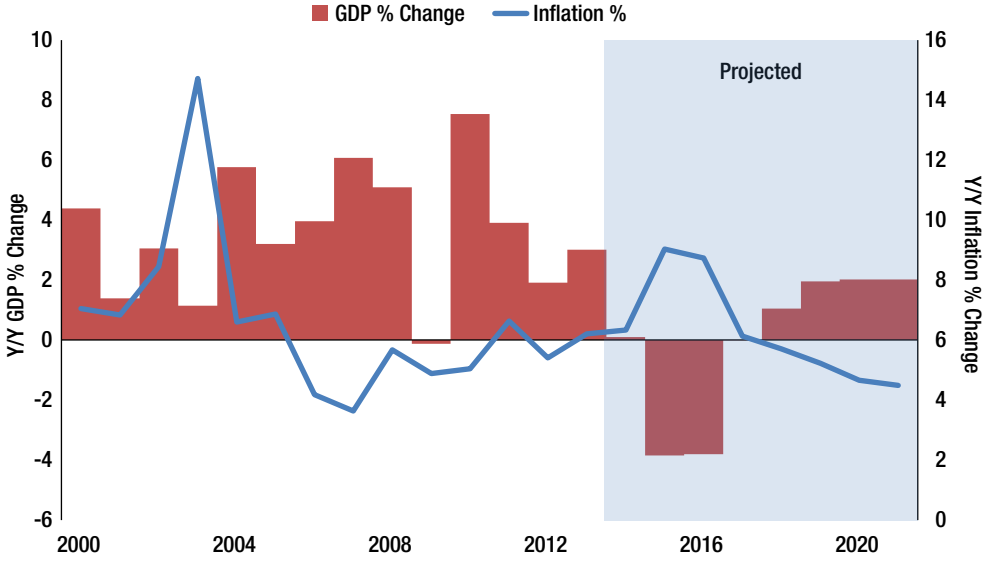
Fast forward to 2016 and the picture has changed. The global financial crisis in 2008 derailed much of the future prospects and progress made in many emerging economies as economic growth ground to a halt and many investors fled to the security of highly rated instruments in the few remaining safe havens. Despite the headwinds of the global economy, Brazil was still able to soldier on for several years with GDP growth levels that were seen as enviable in Europe and in the U.S.

The Petrobras corruption story appeared in 2014 with Operation Carwash (Operação Lava Jato) and within a few short months the country was embroiled in a political and economic scandal that touched across all of Brazilian society and political affiliations. As a result, the internal turmoil did what the global turmoil failed to do in Brazil, curtail economic growth. GDP turned negative, inflation spiked, and rating agencies hit the country with a series of downgrades that put Brazil's sovereign rating below investment grade once again (**Exhibits 25 and 26**).

The impact of the economic downturn then adversely impacted the (re) insurance sector as Brazil's strong insurance and reinsurance growth stayed positive, but at a significantly lower level when compared to prior years. Large government and private sector infrastructure projects have dried up and Brazil's oil and gas industry, impacted not only by the Petrobras investigations but also by low crude prices, shelved many development and exploratory projects and reduced insurance purchasing.

Exhibit 25

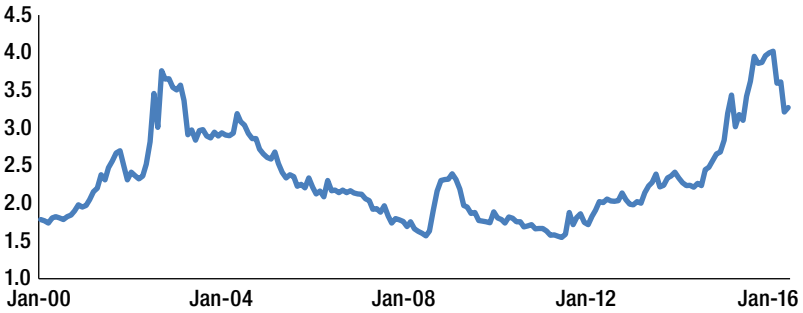
Brazilian GDP and Inflation 2000 – 2021



Source: IMF April 2016 World Economic Outlook

To further Brazil's woes, the Zika virus emerged, scaring away some Olympians and tourists alike while also drumming up negative headlines and pandemic fears along the way. On the (re) insurance front, it wasn't much better as Brazil experienced its largest disaster in recent memory when a mining dam failure in Mariana, Minas Gerais State, caused damage on an unprecedented scale. In late August 2016, Brazil's country risk assessment was moved from a CRT-3 to a CRT-4 due to the country's moderate levels of economic and financial system risk and high levels of political risk, as corruption, continued political uncertainty, lower commodity prices, and growing fiscal deficits will all drag on economic growth in the near term.

Exhibit 26
Exchange Rate: U.S. Dollar/Brazilian Real



Source: Investing.com

Despite all ongoing negatives and uncertainty, glimmers of hope for the future remain. Economists' estimates vary, but some are predicting GDP to be positive in 2017 and more robust growth in subsequent years – the IMF estimates are now for 0.5% growth in 2017. There is also hope that the corruption investigations and trials will ultimately lead to a better government and potential improved "ease of doing business".

The (re)insurance industry in Brazil has proven that, like their global counterparts, they are resilient and capable of weathering difficult market conditions.

Exhibit 27
Market Share: Brazil
(%)

	Market Share		
	2015	2014	Gain/Loss
BTG Pactual Re	4.3	2.6	1.7
Scor Re	1.4	0.0	1.4
Munich Re	5.4	4.8	0.6
AXA	0.7	0.1	0.6
Chubb	4.5	3.9	0.6
Austral	7.3	7.0	0.3
Terra Brasis	1.4	1.2	0.2
AIG	1.4	1.3	0.1
IRB	45.8	45.7	0.0
Markel	0.4	0.4	-0.1
XL	0.7	1.0	-0.3
Swiss Re	3.7	4.0	-0.3
J. Malucelli	3.3	3.7	-0.4
Allianz	7.6	8.0	-0.4
Zurich Re	9.6	11.6	-2.0
Mapfre Re	2.5	4.6	-2.1

Source: Superintendência de Seguros Privados (SUSEP)

Market Share

Based on SUSEP regulatory data, IRB represented 46% of the local reinsurance market in 2015, followed by Zurich Re (9.6% share), Allianz (7.6%), Austral (7.3%), and Munich Re (5.4%). Main market share gainers from 2014 to 2015 were: BTG Pactual Re (+1.7 p.p.), Score Re (+1.4 p.p.), and Munich Re (+0.6 p.p.). Main market share losers from 2014 to 2015 were: MAPFRE Re (-2.1 p.p.), Zurich Re (-2.1 p.p.), and Allianz (-0.4 p.p.) (**Exhibit 27**).

2015 Results (SUSEP data)

IRB Brasil Resseguros S.A., the largest reinsurance company in Brazil, wrote a total of BRL 4.3 billion in gross premiums in 2015, 35% growth over 2014, with 76% of the premiums from Brazil and 24% from abroad, mainly in the Property, Rural, and Life lines. The return on equity (ROE) recorded in 2015 was 29%, almost double the 15% reported in 2014; IRB represented 85% of the reinsurance underwriting profit in the country in 2015. IRB led Housing, Marine, Special Risks, Rural, and Property lines in the year. On the international side, Reinsurance and Retrocession was the main service exported by the country in the first six months of 2015, representing 11% of the total exported. IRB accounted for approximately 80% of this amount. The other reinsurance market participants are currently much smaller than IRB, but as this market continues to evolve the competitive landscape will change and

Exhibit 28
Year-End Net Income
(BRL Millions)

Company	Year End 2015 Net Income
IRB Brasil Resseguros S.A.	763.7
J. Malucelli Resseguradora S/A	60.1
Austral Resseguradora S.A.	43.3
BTG Pactual Resseguradora S.A.	32.5
XL Resseguros Brasil S.A.	21
MAPFRE Re do Brasil Companhia de Resseguros	17.2
Zurich Resseguradora Brasil S.A.	14.9
Allianz Global Corporate & Specialty Resseguros Brasil S.A.	14.3
Munich Re do Brasil Resseguradora S.A.,	14
ACE Resseguradora S/A (acquired by Chubb)	8.6
AIG Resseguros Brasil S.A.	8.2
Terra Brasis Resseguros S.A.	-1.7
Scor Brasil Resseguros S.A.	-2.8
AXA Corporate Solutions Brasil e America Latina Resseguros S.A.	-9.7
Markel Resseguradora do Brasil S.A.	-10.6
Swiss Re Brasil Resseguros S.A.	-34.3

Source: Superintendência de Seguros Privados (SUSEP)

competition will only increase. Although, on the one hand, high interest rates helped the bottom line through positive financial results (the average Central Bank reference interest rate was 13.3% in 2015), a major environmental catastrophe impacted the reinsurance market: Mariana Dam rupture, in the last quarter of the year (**Exhibit 28**).

Mariana Dam rupture, the worst environmental catastrophe in Brazil

On November 5, 2015, a dam of one of Samarco's (joint venture between the mining companies BHP Billington and Vale) iron ore mud tailing reservoirs failed, flooding with mud the town of Bento Goncalves in the district of Mariana, in Minas Gerais State in the Southeast of Brazil. At least 18 people died, and the mud flowed through Rio Doce River into the Atlantic Ocean, polluting 530 miles of the river. Causes are still not completely known, but there is a suspicion that a few small earthquakes could have accelerated the rupture of the already troubled dam, which was built in 2009. This event was considered the worst environmental catastrophe in Brazil (it is being compared with the Exxon Valdez disaster), and total loss for the (re) insurance industry, according to Terra Brasis Re, was estimated at BRL 2.3 billion, of a total estimated economic loss of BRL 26.3 billion (widely underinsured).

Surety Bonds

The recent law change that allowed the acceptance of surety bonds at the municipal level has driven the growth in the financial insurance area. In the past, these types of products were dominated by the banking sector. This new segment of the insurance industry is seen as one of the under-penetrated markets and a growth opportunity in the country: the segment grew 22% in 2015. Players with the largest share of the growth in 2015 for this market were: Pottencial Seguradora, Pan Seguros, ACE Seguradora, Fairfax Brasil Seguros, Tokio Marine, Itau Seguros, Chubb do Brasil Companhia de Seguros, Swiss Re Corporate Solutions Brasil Seguros, J. Malucelli Seguradora, and Allianz Seguros. Together these companies represented 92% of the BRL 490 million market growth in 2015 in the segment (from BRL 2.3 billion in 2014 to BRL 2.8 billion in 2015).

Rating Issues for Brazilian Reinsurers

A.M. Best's rated Brazilian (re)insurers consist of a mix of unaffiliated local start-ups like Austral, BTG, and Terra Brasis and companies that are affiliated with larger international insurance operations like Allianz and J.Malucelli (Travelers) with IRB, the former state-controlled reinsurer, being the exception. Thus far, rating actions relating to the recent socio-political and macroeconomic issues in Brazil have been limited. For the most part, rated (re)insurers maintain levels of risk-adjusted capitalization that help to buffer the companies from the macroeconomic volatility. However, the Brazilian (re)insurance market remains highly competitive and despite some niche opportunities, market conditions could hardly be described as hard or hardening. There are indications that proposed regulatory changes could steadily liberalize the Brazilian reinsurance market and potentially help to spread risk more organically and with fewer restrictions. Nevertheless, given the difficulties that exist in Brazil and when combined with the challenging overall global reinsurance conditions, the reinsurance environment for Brazil is not favorable (**Exhibit 29**).

Exhibit 29

(Re)insurance – Brazil – A.M. Best-Rated Entities

(Ratings as of Aug. 26, 2016)

Company	AMB#	FSR	ICR	Outlook / Implications	Rating Effective Date
Allianz Global Corporate & Specialty Resseguros Brasil S.A.	93335	A	a	Stable	Oct. 9, 2015
Austral Resseguradora S.A.	92459	B++	bbb+	Stable	Sep. 23, 2015
Austral Seguradora S.A.	92493	B++	bbb+	Stable	Apr. 14, 2016
BTG Pactual Resseguradora S.A.	93522	B++ u	bbb u	Negative	Dec. 4, 2015
IRB - Brasil Resseguros S.A.	85590	A-	a-	Stable	Feb. 26, 2016
J.Malucelli Resseguradora S.A.	91509	A-	a-	Stable	Dec. 10, 2015
J.Malucelli Seguradora S.A.	77762	A-	a-	Stable	Dec. 10, 2015
Terra Brasis Resseguros S.A.	92722	B++	bbb	Stable	Jun. 10, 2016

Source: A.M. Best data and research

Appendix 1
Global Market*
Trend Summary
(USD Billions)

	5-Yr Avg	1H 2016**	2015	2014	2013	2012	2011
NPW (Non-Life only)	137.1	64.6	146.2	140.4	143.0	132.5	123.4
Net Earned Premiums (Non-Life only)	132.2	57.3	135.7	137.0	138.5	130.0	119.7
Net Investment Income	22.8	10.1	19.0	23.0	23.2	25.1	23.8
Realized Investment Gains/(Losses)	5.0	9.8	1.3	11.8	1.2	7.5	3.2
Total Revenue	**221.1**	**137.9**	**211.6**	**221.0**	**231.1**	**232.4**	**209.6**
Net Income	**18.4**	**7.1**	**18.9**	**22.9**	**24.7**	**22.1**	**3.3**
Shareholders' Equity (End of Period)	191.1	171.6	198.4	205.7	191.5	190.3	169.8
Loss Ratio	61.3%	63.3%	56.2%	56.2%	56.5%	60.2%	77.3%
Expense Ratio	32.6%	32.2%	34.2%	33.5%	32.3%	31.6%	31.5%
Combined Ratio	93.9%	95.6%	90.4%	89.7%	88.8%	91.8%	108.8%
Reserve Development – (Favorable)/Unfavorable	-6.0%	-3.2%	-5.9%	-5.5%	-5.8%	-6.4%	-6.6%
Net Investment Ratio[1]	17.3%	17.7%	14.0%	16.8%	16.7%	19.3%	19.9%
Operating Ratio	76.6%	77.9%	76.4%	73.0%	72.1%	72.4%	89.0%
Return on Equity (annualized)	9.7%	7.7%	9.5%	11.6%	13.0%	12.4%	1.9%
Return on Revenue (annualized)	8.2%	5.2%	8.9%	10.4%	10.7%	9.5%	1.6%
NPW (Non-Life only/annualized) to Equity (End of Period)	71.8%	75.3%	73.7%	68.2%	74.7%	69.6%	72.7%
Net Reserves to Equity (End of Period)	281.9%	277.2%	250.9%	256.3%	290.9%	287.4%	324.4%
Gross Reserves to Equity (End of Period)	306.1%	297.4%	273.5%	276.8%	316.5%	314.5%	349.2%

[1] Net Investment Ratio based on Non-Life NPE
*ACE Ltd. retroactively removed from US & Bermuda and Global Composite(s)
**Lloyd's 1H 2016 data unavailable at time of publication

Appendix 2
European 'Big Four' Market
Trend Summary
(USD Billions)

	5-Yr Avg	1H 2016	2015	2014	2013	2012	2011
NPW (Non-Life only)	61.2	35.2	68.1	61.4	64.8	58.5	53.4
Net Earned Premiums (Non-Life only)	58.1	32.6	58.4	60.4	62.4	58.1	51.0
Net Investment Income	16.7	7.9	14.2	16.3	17.1	18.6	17.0
Realized Investment Gains/(Losses)	4.0	9.2	1.7	10.1	0.4	5.2	2.4
Total Revenue	**138.4**	**67.7**	**128.4**	**134.6**	**147.2**	**149.4**	**132.3**
Net Income	**9.1**	**4.3**	**10.0**	**9.3**	**11.1**	**10.2**	**4.7**
Shareholders' Equity (End of Period)	83.0	89.6	84.0	89.9	83.9	85.0	72.4
Loss Ratio	64.4%	65.9%	59.9%	61.7%	61.6%	61.6%	77.5%
Expense Ratio	30.3%	31.3%	31.9%	30.7%	29.8%	29.7%	29.5%
Combined Ratio	94.7%	97.1%	91.8%	92.4%	91.4%	91.3%	107.0%
Reserve Development – (Favorable)/Unfavorable	-4.8%	-1.7%	-4.6%	-3.3%	-3.7%	-5.8%	-6.5%
Net Investment Ratio[1]	28.8%	24.2%	24.3%	27.0%	27.5%	32.1%	33.3%
Operating Ratio	65.9%	72.9%	67.5%	65.3%	63.9%	59.2%	73.7%
Return on Equity (annualized)	11.1%	9.9%	11.5%	11.0%	13.1%	13.0%	6.6%
Return on Revenue (annualized)	6.5%	6.4%	7.8%	6.9%	7.5%	6.8%	3.6%
NPW (Non-Life only/annualized) to Equity (End of Period)	73.8%	78.5%	81.0%	68.4%	77.3%	68.8%	73.8%
Net Reserves to Equity (End of Period)	473.9%	421.9%	425.9%	426.9%	492.7%	467.0%	557.1%
Gross Reserves to Equity (End of Period)	493.1%	440.6%	444.9%	446.0%	515.9%	489.1%	569.5%

[1] Net Investment Ratio based on Non-Life NPE

Appendix 3

U.S. & Bermuda Market*

Trend Summary

(USD Billions)

	5-Yr Avg	1H 2016	2015	2014	2013	2012	2011
NPW (Non-Life only)	44.7	29.4	47.0	47.8	44.8	42.6	41.4
Net Earned Premiums (Non-Life only)	43.8	24.7	46.7	46.2	43.6	41.7	40.8
Net Investment Income	4.8	2.2	4.2	5.0	4.7	4.9	5.4
Realized Investment Gains/(Losses)	1.0	0.6	(0.5)	1.6	0.9	2.1	0.7
Total Revenue	**51.1**	**70.2**	**52.2**	**54.4**	**50.4**	**50.7**	**47.8**
Net Income	**5.9**	**2.8**	**5.7**	**8.7**	**8.4**	**7.4**	**(0.6)**
Shareholders' Equity (End of Period)	75.3	82.0	78.5	80.8	74.0	74.2	69.2
Loss Ratio	61.7%	60.0%	55.7%	53.8%	55.3%	62.6%	81.2%
Expense Ratio	31.8%	33.6%	33.3%	33.6%	31.3%	30.3%	30.4%
Combined Ratio	93.5%	93.5%	88.9%	87.4%	86.6%	92.9%	111.6%
Reserve Development – (Favorable)/Unfavorable	-6.6%	-5.1%	-6.2%	-6.6%	-7.2%	-6.6%	-6.7%
Net Investment Ratio[1]	11.1%	9.0%	9.0%	10.8%	10.7%	11.7%	13.2%
Operating Ratio	82.4%	84.6%	79.9%	76.6%	75.9%	81.3%	98.3%
Return on Equity (annualized)	7.9%	6.9%	7.5%	10.9%	11.4%	10.6%	-0.9%
Return on Revenue (annualized)	11.4%	4.0%	11.0%	16.0%	16.6%	14.7%	-1.3%
NPW (Non-Life only/annualized) to Equity (End of Period)	59.4%	71.7%	59.9%	59.2%	60.5%	57.4%	59.8%
Net Reserves to Equity (End of Period)	131.1%	119.2%	121.3%	121.3%	130.6%	138.1%	144.2%
Gross Reserves to Equity (End of Period)	150.9%	141.0%	142.0%	135.5%	149.4%	159.1%	168.5%

[1] Net Investment Ratio based on Non-Life NPE

*ACE Ltd. retroactively removed from US & Bermuda and Global Composite(s)

Appendix 4

The Truth Behind Insurance Impairment & Corporate Default Studies

In a step designed to further enhance transparency, A.M. Best will present more granular impairment statistics associated with its Financial Strength Ratings (FSRs). This information will make it easier to differentiate between the performance statistics associated with various insurance and reinsurance ratings and more clearly define the stark difference between insurance impairment rates and the default rates of corporate issuers. This article is a preview to the ratings performance statistics that will be produced by A.M. Best in the forthcoming report, *Best's Impairment Rate and Rating Transition Study – 1977 to 2015*.

This article supports A.M. Best's long-held position that impairment statistics calculated by A.M. Best are not comparable to corporate default rates produced by the largest nationally recognized statistical rating organizations (NRSROs). Impairment includes a host of regulatory actions that do not rise to the severity of reducing policyholder obligations. Furthermore, users of performance statistics should be aware that corporate default rates are dominated by defaults of financial institutions and corporate issuers, and generally contain a small number of insurance companies. If users of performance statistics are compelled to make comparisons between impairment rates and default rates, they should compare liquidations, a subset of impairments, to corporate defaults because liquidation is the most severe form of insurance company regulatory intervention that also is most likely to lead to losses to policyholders.

Definition of Impaired Companies

A.M. Best designates an insurer as a Financially Impaired Company (FIC) upon the first action taken by an insurance department or regulatory body, whereby the insurer's (a) ability to conduct normal insurance operations is adversely affected; (b) capital and surplus have been deemed inadequate to meet regulatory requirements; or (c) general financial conditions have triggered regulatory concern. Such actions include liquidation, conservatorship, rehabilitation, supervision, receivership, cease-and-desist orders, suspension, license revocation, and certain administrative orders. Companies that enter voluntary dissolution without being under financial duress are not counted as financially impaired.

A.M. Best's Rating Scales

The granular impairment rates shown in this article are based on the 13-point FSR symbols and notches adopted by A.M. Best in 1992, as shown in **Appendix 4-1**. **Appendix 4-1** also shows the 21-point Long-Term Issuer Credit Rating (ICR) symbols and notches adopted by A.M. Best in 2001. Because the ICR is the foundation for the FSR, **Appendix 4-1** is used to translate from the ICR to the FSR scale. Though the ICR has been phased in over time, every insurance operating company with an FSR currently has an ICR.

The Population

A.M. Best's latest impairment rate calculations previewed in this article cover 38 one-year periods from Dec. 31, 1977, to Dec. 31, 2015, and include just U.S. companies that had at least one FSR over this

Appendix 4-1

Translation Table

FSR	Long-Term ICR
A++	aaa
	aa+
A+	aa
	aa-
A	a+
	a
A-	a-
B++	bbb+
	bbb
B+	bbb-
B	bb+
	bb
B-	bb-
C++	b+
	b
C+	b-
C	ccc+
	ccc
C-	ccc-
	cc
D	c

period. Of the 5,183 companies that had an A.M. Best rating in this period, 761 eventually became financially impaired, although just 576 of those insurers had a rating at the time of impairment. Furthermore, of the 576 impaired companies that had an A.M. Best rating when they became impaired, approximately 375 (65%) went into liquidation – a significant fact when comparing impairments to corporate defaults, as discussed later in this article.

A Note on Methodology

Because the calculation of ratings performance statistics is subject to manipulation, regulators are generally prescriptive about the methods used to calculate impairment rates or corporate default rates. One of the issues subject to manipulation in the tabulation of performance statistics generally relates to the treatment of rating withdrawals. A.M. Best has traditionally taken the most conservative view of rating withdrawals by counting impairments that may occur long after ratings have been withdrawn. In addition, A.M. Best has traditionally only tabulated impairment rates based on the companies in a cohort that were not withdrawn over the period in which the impairment rates are being measured. The treatment of rating withdrawals, which may appear innocuous, can dramatically affect impairment rates, especially for longer-dated impairment rate calculations. For example, A.M. Best's tabulation of the 10-year impairment rate for "A-" (Excellent) insurers using its extremely conservative method of 1) counting impairments even after ceasing to rate insurers and 2) reducing the starting cohort of insurers by the number of withdrawals, increases the impairment rate by approximately 35% over the impairment rate calculated without these adjustments.

In this article, impairment rates are tabulated based on A.M. Best's current methodology; however, calculations of impairment rates that are generally consistent with the rules implemented by the Securities and Exchange Commission (SEC) this year for tabulating ratings performance statistics are also presented. The SEC methodology is broadly consistent with the way some major ratings agencies calculate their performance statistics associated with corporate defaults. Details of A.M. Best's calculation methodology for impairment rates will be published in the forthcoming report, *Best's Impairment Rate and Rating Transition Study – 1977 to 2015*.

Impairment Rates

Appendix 4-2 displays the impairment rate calculated based on A.M. Best's broad definition of regulatory intervention, which includes liquidation, conservatorship, rehabilitation, supervision, receivership, cease-and-desist orders, suspension, license revocation, and certain administrative orders. The rate was produced using A.M. Best's traditional calculation methodology. **Appendix 4-3**, however, represents the impairment rate calculations based on a methodology that is broadly consistent with the SEC-prescribed methodologies for tabulating performance statistics, and the calculations generally used by some NRSROs for producing corporate default rates. The differences between the impairment rates in the two exhibits reflect the disparate treatment of withdrawals.

Specifically, the differences between the assumptions in **Appendix 4-2** (the A.M. Best methodology) and **Appendix 4-3** (the general methodologies prescribed by the SEC and used by some NRSROs) are as follows:

(1) The calculations in **Appendix 4-2**, unlike those in **Appendix 4-3**, count impairments even after A.M. Best has ceased rating the insurers, resulting in higher impairment rates in **Appendix 4-2** than in **Appendix 4-3** at all rating levels.
(2) The calculations in **Appendix 4-2**, unlike those in **Appendix 4-3**, reduce the denominator of the starting cohorts of companies in the impairment rate determinations by the number of withdrawn companies, thus making the impairment rates in **Appendix 4-2** higher than those in **Appendix 4-3** at all rating levels.

As an example of the difference in impairment rates based on the two methodologies, insurers with "A-" ratings have a 10-year impairment rate of 6.65%, as shown in **Appendix 4-2**, based on A.M. Best's conservative methodology. **Appendix 4-3** shows an impairment rate of 4.94% for the same cohort based on the methodology generally consistent with the methodologies prescribed by the SEC and used by some major NRSROs.

Insurance Company Impairment Rates vs. Corporate Issuer Default Rates

The credit markets broadly deem an issuer default as having occurred when an issuer

Appendix 4-2

Best's Average Cumulative Impairment Rates (Traditional A.M. Best Calculation Methodology)

(U.S. Life/Health and Property/Casualty Data from 1977 to 2015)

FSR	ICR	1-Year	3-Year	5-Year	7-Year	10-Year	15-Year
A++	aaa, aa+	0.00%	0.00%	0.00%	0.00%	0.04%	0.14%
A+	aa, aa-	0.06%	0.35%	0.71%	1.23%	2.25%	4.69%
A	a+, a	0.13%	0.75%	1.63%	2.71%	4.68%	8.34%
A-	a-	0.19%	1.19%	2.43%	3.99%	6.65%	11.38%
B++	bbb+, bbb	0.55%	2.67%	4.91%	7.02%	10.13%	16.64%
B+	bbb-	0.84%	3.03%	6.30%	9.50%	13.37%	19.32%
B	bb+, bb	1.69%	6.47%	11.28%	16.54%	23.01%	32.92%
B-	bb-	5.06%	11.35%	16.12%	20.75%	27.20%	35.15%
C++/C+	b+, b, b-	3.85%	10.18%	16.74%	22.29%	31.48%	40.47%
C/C-	ccc+, ccc, ccc-, cc	6.44%	13.82%	20.55%	28.94%	38.82%	51.16%
D	c	7.60%	19.28%	29.19%	37.85%	47.14%	58.00%
FSRs from A++ to B+		0.22%	1.03%	2.08%	3.26%	5.13%	8.56%
FSRs from B to D		3.82%	10.49%	16.85%	23.25%	31.42%	42.10%
All		**0.63%**	**2.05%**	**3.67%**	**5.45%**	**8.15%**	**12.83%**

Source: A.M. Best data and research

Appendix 4-3

Best's Average Cumulative Impairment Rates (Methodology Broadly Consistent With SEC & Major NRSRO Methodology)

(U.S. Life/Health and Property/Casualty Data from 1977 to 2015)

FSR	ICR	1-Year	3-Year	5-Year	7-Year	10-Year	15-Year
A++	aaa, aa+	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
A+	aa, aa-	0.06%	0.31%	0.59%	0.92%	1.51%	3.03%
A	a+, a	0.13%	0.66%	1.32%	1.99%	3.17%	5.28%
A-	a-	0.18%	1.08%	2.08%	3.24%	4.94%	7.43%
B++	bbb+, bbb	0.53%	2.32%	3.89%	5.10%	6.67%	9.68%
B+	bbb-	0.79%	2.51%	4.47%	6.14%	7.88%	9.78%
B	bb+, bb	1.56%	4.51%	6.86%	9.11%	11.16%	13.87%
B-	bb-	4.73%	9.03%	11.68%	13.47%	16.12%	18.59%
C++/C+	b+, b, b-	3.48%	7.61%	10.44%	12.57%	16.09%	18.41%
C/C-	ccc+, ccc, ccc-, cc	5.78%	10.32%	13.74%	17.58%	21.07%	25.29%
D	c	6.63%	13.58%	18.52%	22.40%	26.03%	30.62%
FSRs from A++ to B+		0.21%	0.92%	1.70%	2.46%	3.56%	5.40%
FSRs from B to D		3.47%	7.67%	10.74%	13.41%	16.27%	19.69%
All		**0.61%**	**1.77%**	**2.88%**	**3.95%**	**5.39%**	**7.65%**

Source: A.M. Best data and research

misses interest or principal payments on its obligations, restructures its debt in a way that is deleterious to investors, or files for bankruptcy. Financial impairment of insurance companies, by contrast, can occur even if an insurance company has not formally been declared insolvent. For instance, an FIC's capital and surplus could have been deemed inadequate to meet risk-based capital requirements, or there might have been regulatory concern regarding its general financial condition. Thus, at any given rating level, significantly more insurers would be impaired, according to the A.M. Best definition, than actually would default on an insurance policy and contract obligations.

Besides the "hair-trigger" impairment designation that can occur with insurance carriers, there are other issues users of performance statistics should be aware of when comparing insurance impairment rates with default rates. These issues relate to the population of companies in the default studies of major rating agencies. While it is true that rating agencies endeavor to normalize ratings across various industries, it is undeniable that performance statistics can still reveal significant differences in default rates in the various sectors rated by NRSROs. This is perhaps one of the reasons that A.M. Best and other NRSROs are required to submit performance statistics annually to the SEC based on five main classes of credit ratings: financial institutions, insurance companies, corporate issuers, issuers of asset-backed securities (and their sub-classes), and issuers of government securities. NRSROs generally include performance statistics associated with three of the five classes of credit ratings (as reported to the SEC) in their corporate default studies: financial institutions, insurance companies, and corporate issuers. The components of the corporate default studies for the largest NRSROs are shown in **Appendix 4-4**, which contains data pulled from SEC Form NRSRO for 2015.

Users of performance statistics also should be aware of what types of issuers are included in the data produced by the various ratings agencies in their default studies. **Appendix 4-4**

Appendix 4-4
Assumed Components of Corporate Default/Impairment Studies by Largest NRSROs*

	A.M. Best		Moody's		S&P		Fitch	
Insurance Companies	3,506	95%	889	15%	825	12%	185	6%
Financial Institutions	0	0%	2,010	33%	1,281	19%	1,250	41%
Corporate Issuers	187**	5%	3,138	52%	4,800	70%	1,615	53%
Total	3,693	100%	6,037	100%	6,906	100%	3,050	100%

* Data as reported in Exhibit 1, Form NRSRO Filing for 2015 (Data as of 12/31/2014)
** Although A.M. Best provides ratings on Corporate Issuers, the data is not included in its impairment studies/statistics.
Source: A.M. Best data and research

shows that as of December 31, 2014, the portion of insurance companies in these corporate default studies conducted by the largest NRSROs (at least for the 2014 cohort) ranges from 6% to 15%. A.M. Best cannot confirm that this range holds for the entire period in which these companies conduct their corporate default studies; however, the portion of insurance companies that composed the assumed population in the corporate default studies of these NRSROs as of December 31, 2005 ranged from 8% to 17%, according to regulatory filings. As a result, A.M. Best believes the 6% to 15% range is a fair approximation for the entire study periods of the other NRSROs. Meanwhile, A.M. Best's impairment studies consist of just insurance companies, so they do not contain any corporate issuers or financial institutions. Thus, an informed user of default information associated with corporate default studies should be keenly aware that for all intents and purposes, defaults associated with non-insurance institutions – namely corporate issuer and financial institutions – overwhelmingly dominate such statistics.

A.M. Best believes that while impairment rates, as currently defined, are not directly comparable to corporate default rates, a subset of impairments, liquidations, may be closer to the issuer default rates calculated by the largest NRSROs. There are many occasions where more benign regulatory supervisory protocols do not or are not expected to trigger any losses associated with policyholder and contract obligations. Liquidation, on the other hand, offers the possibility of losses to policyholders. Likewise, global corporate default rates calculated by the largest NRSROs also generally relate to the possibility of unsatisfied senior obligations, although in the case of corporates, the first dollar of loss to obligors or the restructuring of debt to avoid such losses is often certain.

Appendix 4-5 shows the liquidation rates for the A.M. Best–rated population between 1977 and 2015. The 375 liquidations counted are related to any liquidated insurance carrier rated by A.M. Best at the time of impairment. As a reminder, the total impairment count was 761, so, ultimately, about 49% of the impaired companies factored into the cumulative liquidation rates in the exhibit.

Appendix 4-5

Best's Average Cumulative Liquidation Rates (Methodology Broadly Consistent With SEC & Major NRSRO Methodology)

U.S. Life/Health and Property/Casualty Data from 1977 to 2015

FSR	ICR	1-Year	3-Year	5-Year	7-Year	10-Year	15-Year
A++	aaa, aa+	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
A+	aa, aa-	0.03%	0.19%	0.37%	0.57%	0.89%	1.62%
A	a+, a	0.07%	0.35%	0.72%	1.11%	1.70%	2.86%
A-	a-	0.09%	0.61%	1.05%	1.49%	2.28%	3.44%
B++	bbb+, bbb	0.36%	1.28%	2.18%	2.89%	3.69%	5.24%
B+	bbb-	0.49%	1.51%	2.70%	3.76%	4.88%	6.30%
B	bb+, bb	1.05%	2.99%	4.66%	6.20%	7.95%	10.06%
B-	bb-	3.12%	6.33%	7.64%	8.58%	10.84%	12.53%
C++/C+	b+, b, b-	2.76%	5.88%	7.88%	9.53%	11.70%	13.80%
C/C-	ccc+, ccc, ccc-, cc	2.78%	6.01%	8.43%	10.83%	13.33%	17.03%
D	c	4.67%	9.79%	13.68%	16.76%	19.56%	22.85%
FSRs from A++ to B+		0.13%	0.52%	0.96%	1.39%	1.98%	2.99%
FSRs from B to D		2.35%	5.34%	7.55%	9.47%	11.67%	14.35%
All		**0.40%**	**1.13%**	**1.82%**	**2.48%**	**3.37%**	**4.78%**

Source: A.M. Best data and research

To summarize, A.M. Best has shown three ways to calculate impairment rates:

(1) The conservative method used by A.M. Best, which shows that insurers with "A-" ratings have a 10-year impairment rate of 6.65% (as shown in **Appendix 4-2**);
(2) The method generally compliant with the SEC-prescribed calculations and consistent with the methodology used by major NRSROs, which shows that insurers with "A-" ratings have a 10-year impairment rate of 4.94% (as shown in **Appendix 4-3**); and
(3) The method generally compliant with the SEC-prescribed calculations and consistent with the methodology used by major NRSROs, which shows that insurers with "A-" ratings have a 10-year *liquidation* rate of 2.28% (as shown in **Appendix 4-5**).

Appendix 4-6 summarizes the three calculation methods for insurers with "A-" (Excellent) ratings.

Appendix 4-6

Cumulative 10-Year "A-" (Excellent) Impairment/Liquidation Rates

(Based on Various Methods)

Calculation Methods	10-year "A-" Impairment/Liquidation Rates
A.M. Best Method (Broad Impairment Definition)	6.65%
SEC & NRSRO Method (Broad Impairment Definition)	4.94%
SEC & NRSRO Method (Liquidation)	2.28%

Source: A.M. Best data and research

Conclusion

The methodologies used for calculating various ratings performance statistics can produce drastically different results, even when the data set is precisely the same. The differences become more pronounced when comparing performance statistics related to insurance impairment rates with those related to corporate default rates. A.M. Best believes that such a comparison may not be appropriate because (1) corporate default studies typically involve very few insurance companies in the population used for calculating corporate default rates, and (2) impairment is too broad an indication of insurer distress since many regulatory interventions that mark impairments do not rise to the level where liquidations, the assumed corollary to defaults on corporate obligations, are necessary.

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