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Introduction 
BY JERRY WALLIS, IRUA EXECUTIVE DIRECTOR

Our second edition of the year is another big issue with four very different articles covering varied topics.

In the last issue we had an article on Unmanned Aerial Systems and this time we start out with a return to a manned aerial system being the newly emerging – and somewhat delayed – risk of space travel. Robin Lieb was another of our 2017 Scholars Essay Award winners and produced this extensive paper entitled: Space Tourism Insurance Isn’t Rocket Science, Is It?

This has long been the dream of entrepreneurs and, after some spectacular setbacks, is almost at fruition with 2019 now being regarded as a likely first commercial space tourist flight. The article considers the risk with particular regard to regulation, legislation and legal issues. It then looks at the potential new business opportunities and challenges for both the P&C and life/A&H industries and, almost certainly, the need for reinsurance that the risks entail.

Now having safely returned to terra firma we move on to Professor Michael Zuckerman and his latest treatise: Enterprise Risk Management: Captive Insurance, Reinsurance, and Driving Stakeholder Value.

Dr. Zuckerman has long been an expert in all matter captive related and he now explores the value captives can provide parent companies in the ever-expanding realm of ERM and business continuity and thus, over time, increase stakeholder value. Dr. Zuckerman is one of the members of the JOR Industry Advisory Panel that supports the JOR Committee in its work and a past faculty member at IRUA educational events.

Article three is a double-header! Head Games: The Concussion Crisis by Chris Nowinski, who was a past Keynote Speaker at an IRUA Spring Conference and well-known author and speaker in all matters to do with the awful problem of concussion/CTE. For anyone who attended this event and saw his video of football clips, for me, at least, they will never be forgotten. Dr. Nowinski has been highly instrumental in the education process regarding concussions/CTE and explains the current problem which now reaches crisis levels. With his first-hand knowledge there is no-one better qualified to update our readership on these developments.

Head Games: A (Re)Insurance Perspective brings the topic into focus from an insurance & reinsurance claims standpoint. Maiden Re’s Michael Kurtis is a JOR Committee member, and prior thereto, was an Industry Advisory Panel member and brings a great deal of experience from prior private practice in the areas of complex claims and litigation/arbitration.

Rounding out the issue is ERM Requirements for ORSA and A.M. Best by Kristina Narvaez of Hanover Stone Solutions. Dr. Zuckerman introduced the use of captives in relation to ERM and Ms. Narvaez looks at the subject in relation to Own Risk Solvency Assessment now being undertaken by many entities and how that relates to ERM practices and the ongoing survey responses required by A.M. Best Company as part of their rating evaluation process. Ms. Narvaez has extensive experience in this area and is currently a Senior Advisor at Hanover Stone Solutions involved with the ERM and Strategy practice.

IRUA News

With several of our educational sessions now history - Cyber, Blockchain, the Annual Meeting & Conference, and the excellent Wall St. View of the Industry, as well as our joint meetings of the Reinsurance Networking Group- we have a few more in the pipeline before everyone gets caught up in the maelstrom of preparing for year-end activity and then being completely engulfed by it. Even after quite a few years now, I still feel relief at being able to enjoy the year-end holidays without the pressure of the calendar moving ever closer to 1.1 Now it’s more making sure that you receive the Journal on a timely basis!

On September 12th, we are planning on a great presentation by Rob Kole of Choate of Hall & Stewart on The Opioid Crisis. This will be held in NYC at Trans Re, 1 Liberty Plaza, 165 Broadway, New York, NY 10006. Registration is now open on our website.

Before the end of the year, we will probably be holding another lunchtime meeting of the Reinsurance Networking Group on a claims/legal/arbitration topic.

In August we have an offsite meeting of the IRUA Board of Directors which will include consideration of educational topics for 2019 which will be posted on the website as soon as they are determined and approved.

On April 2-3, 2019 we have our Annual Meeting & Conference at the Marriott Harbor Beach Resort in Fort Lauderdale, Florida with a new format that you can read all about on our website under the “Events” tab and then select “Annual Conference” from the dropdown menu. It promises to be an exciting program packing a lot of excellent sessions, topics and presenters into a shortened timeframe while still allowing for plenty of excellent networking opportunities.

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Our website – www.irua.org – provides you with all you will want to know about the IRUA supplemented by our new, but established and popular, weekly IRUA Newsletter. If you are not receiving our newsletter by email, please let us know and we will add you for a free subscription.

As always, we remind you that all member company and individual members and Journal subscribers can access, free of charge, all articles published by following the “JOR Archive” link on the website homepage at www.irua.org.

Best regards,

Jerry Wallis, IRUA Executive Director
Space Tourism Insurance
Isn’t Rocket Science, Is It?
By Robin Lieb

About the Author
Mr. Lieb interned at Arch Re in Morristown, NJ during the summer of 2017. He was a recipient of a Scholarship Award for his essay. He graduated summa cum laude in May 2018 from the State University of New York (SUNY) in Albany, NY and is now employed by Ayco (Goldman Sachs) in the Private Wealth Management division.

Abstract
Space activities make up one of the riskiest and most challenging hi-tech industries that exert an enormous impact on other fields. Over the past 50 years, space agencies around the world have significantly improved our knowledge of space, provided an important driving force for technological progress and set new goals for human kind to achieve. One of those goals is to commercialize space travel and expanding the scope to space tourism. With multiple companies around the globe pursuing that objective it is merely a question of when rather than how flying to space will be commercialized. Current projections estimate that the first commercial flight will lift off in 2019 with the global market growing at approximately 14.34% per year (Tiwari, 2017). This white paper seeks to provide information on the commercialization of space travel, especially in regards to space tourism. The primary focus is on current regulation, legislation and legal issues. This paper then examines new business opportunities and challenges that the space tourism industry creates for the insurance industry, especially in regards to life and travel insurance, as well as physical loss and liability. Finally, the paper will cover the impact of space tourism on the reinsurance industry and an outlook to where space travel might end up in a few years.

WHAT IS SPACE TOURISM?
Space tourism can be broadly defined as “any commercial activity offering customers direct or indirect experience with space travel” (Hobe, 2010). The direct experience, which is the component this paper focuses on, is concerned with providing civilians and non-professionals the opportunity to go to space and experience weightlessness by launching space shuttles or rockets into orbit. The three most prominent companies in this sector, SpaceX, Blue Origin and Virgin Galactic, are all working on a range of vehicles that can deliver a payload to different points in space. The three companies’ primary objective is to decrease the cost and risk of space travel, ultimately making the journey more affordable. Two variables are especially important to these companies. The first variable to consider is the distance the vehicle must travel as it is directly correlated to cost development. The second one is the type of vehicle used. Currently, two scenarios for commercial space flight are being developed based on the first variable:

• Suborbital Space Tourism – This type of journey takes passengers up to space at an altitude of about 100 km also commonly referred to as the ‘edge of space.’ This flight comes with several minutes of weightlessness, as well as experiencing the blackness of space (Chow, 2011).

• Orbital Space Tourism – In this more expensive scenario, the vehicle would take its passengers into the low earth orbit, approximately 400 miles from earth, and beyond. An orbital space trip could include a visit to the International Space Station (ISS), a flight around the moon or maybe even a stay in a space hotel, once the technology has been tested thoroughly. This kind of travel also comes with an extended period of weightlessness (Chow, 2011).

A distinction must also be made between the different types of vessels used for space tourism, which is the second variable. Prior to companies striving to make space accessible to private
individuals, national agencies like the National Aeronautics and Space Administration (NASA) or the European Space Agency (ESA) were the only ones developing rockets capable of bringing humans to space. However, the problem with conventional rockets, like the Chinese Long March rocket family and the European Ariane rocket family, is that they are rather expensive as the launch vehicle is lost during re-entry into the earth’s atmosphere. This is the reason why private companies like SpaceX, Blue Origin or Virgin Galactic are working on cheaper, more sustainable and reusable alternatives to travel to space (May, 2015).

• Reusable Rocket – SpaceX and Blue Origin hope to cut launch costs by developing launch vehicles that have the ability to land vertically instead of burning up when entering the earth’s atmosphere. SpaceX has already landed the first stage of its Falcon 9 rocket successfully multiple times (“SpaceX: Falcon 9,” n.d.). So far, the rocket has only been used to transport satellites to orbit and deliver supplies for NASA to the ISS. However, the Dragon capsule on the tip of the Falcon 9, was originally designed from the outset to deliver humans into space, which is still the ultimate goal of Elon Musk, the CEO of SpaceX.

• Reusable Shuttle – Virgin Galactic is among one of the companies that are relying on a reusable shuttle (“Virgin Galactic: Your Flight to Space,” n.d.). The difference to the NASA shuttle program is that Virgin Galactic’s shuttle, SpaceShipTwo, is connected to a carrier plane that takes off horizontally. After reaching approximately 10 miles, the carrier ship releases the shuttle which then rises to 62 miles. After about four minutes of weightlessness, the shuttle lands horizontally on a runway. The incorporation of these airplane like features enables Virgin Galactic to decrease the shuttle’s maintenance, as well as fuel cost. Virgin Galactic’s shuttle idea is probably the closest human kind has ever gotten to commercializing space travel.

The distinction between rockets and shuttles, as well as the altitude of the journey, is of utmost importance when assessing the implications these factors have on the insurance industry as the differences will likely affect legal limitations, the cost of the flight and the risk associated with the flight. One should keep in mind that despite the tremendous progress the aerospace industry has made, flying to space still is an inherently risky activity no matter the kind of vehicle used or which altitude is reached.

3 SPACE TRAVEL OVERVIEW

“Historically, 4% of the people who have flown in space have perished” according to NASA (Knutson, 2007). Over the last five years, approximately 5.7% of the launch attempts that included rockets worldwide failed according to Space Launch Report (Kyle, n.d.). SpaceX attempted to land its Falcon 9 rocket 25 times, failing on eight occasions – a success rate of only 68%, granted [though that they have had an increasing number of successes in a row since the last failure (“SpaceX: Falcon 9,” n.d.). These numbers, combined with news about the crash of Virgin Galactic’s SpaceShipTwo, killing one pilot and injuring the other, tend to imply that space tourism is inherently risky and that spaceflight, commercial or otherwise, is still in its relative infancy and the technology is all but fully mastered. Federal Aviation Administration (FAA) Associate Administrator Dr. George C. Nield once said that “Passengers will be riding a vessel packed with a volatile mix of carefully processed chemical ingredients, thousands of independent parts, and extremely sophisticated software; and they will be bound for an inhospitable environment, far away from where they bought their tickets. Private human spaceflight is like climbing Mount Everest with a lot farther to fall” (Cooney, 2008).

Space tourism risks are often forgotten or downplayed, making it easy to get lured into the hype and shiny marketing that is often associated with this activity and the venture seeking to serve that emerging market. Behind the smoke screen created by space travel companies and marketing agencies, as well as websites, glossy brochures and public relations stunts boasting about recreation in the fantastic space environment and the thrill of a daring life-threatening adventure, lie the grim reliability and safety records of space travel companies. The risk of death is an order of magnitude higher than for most other extreme experiences, like bungee or base jumping or acrobatic flying (Bensoussan, 2010). Hence, sound guidelines and insurance is the be-all and end-all when it comes to commercial space flight, especially since multiple studies on the feasibility of space tourism show the industry could grow into a high revenue market, reaching $35 billion by 2021 (van Oijhuizen Galhego Rosa, 2013; see also Futron, 2006; Tiwari, 2017).

4 SPACE FLIGHT INSURANCE

Space tourism insurance can broadly be defined as the insurance coverage for all risk related to commercial space travel. Nevertheless, each commercial space activity, whether it is orbital or suborbital, implies different coverage, risk, as well as legal issues. Due to the similarities between the industries, space tourism insurance might look much like insurance in the aviation and space industry. While much can be derived from these already existing policies, the elements of an efficient insurance market, such as homogeneous exposures, continuous activity, large number of trials and statistical analysis data of experience have not been yet available for the launch vehicles used in the commercial space market (van Oijhuizen Galhego Rosa, 2013). Further, “its typology of insurable risks becomes complex in both commercial space activities due to:

• Variety of actors involved (passengers/tourists, travel agencies and/or tour operators, aircraft and/or spacecraft manufacturers and their subcontractors, aircraft and/or pilots and/or cosmonauts)

• Variety of risks (bodily injury, death, health deterioration of passengers/tourists, crew and third party, environmental damage (on earth and in space))

• Property damage on earth and space (to third party on the ground and in air, to third party in space, to participant ground installations, to participant aircraft, to spaceplane/rocket plane, to space station/hotel)

• Variety of phases of risks involved on the ground and flight

• Variety of insurance markets involved (aviation insurance, space insurance, marine insurance)” (Moysan, 2008).

Over the past few years, an increasingly soft market, volatility and decreasing margins, lead to now a mere 40 insurance companies that are still involved in the space business. The space insurance market requires $800 million of capacity to insure the largest risks, however, launches on average require only $200 million, one-fourth of the market capacity, according to Chris Kunstadter, SVP and Global Underwriting Manager at XL Catlin (2017). With commercial space travel still being in the fledgling stage of development, the space tourism insurance sector, with a few exceptions, is virtually non-existent and most insurers currently offer few products related to space tourism. Other than the overall unfavorable market conditions, this is partly because few policies have ever been written for human space travel. The closest possible relationship to commercial space travel are policies written to insure satellite launches, but how would these
policies have to be change if insurance expanded the framework to space tourism?

4.1 SUBORBITAL SPACE TOURISM

The closest already existing activity to commercial space flight is offered by a company called Zero-G Experience. Their program offers their participants an experience of weightlessness without leaving the atmosphere by flying parabolic maneuvers with a slightly modified Boeing 727 aircraft. However, each flight sequence only creates about 30 seconds of weightlessness, whereas a suborbital flight lets its passengers experience the effect for an extended period. The fact that the suborbital flight leaves the atmosphere for the effect also impacts legal implications as they tend to differ from the aviation industry.

4.1.1 LEGAL FRAMEWORK

Internationally, there is no particular legal framework governing or regulating suborbital space flight. In the United States, however, legislation provides rules and guidelines for commercial human space flights. These rules were established in the United States Commercial Space Launch Amendments Act of 2004 (CSLAA), which was signed by President George W. Bush in December 2004 (51 USC 509). The CSLAA makes the FAA responsible for regulating human space flight. However, it also established an experimental permit regime for the development of reusable suborbital vessels to prevent slower development through regulation. With this permit still in effect today and FAA regulation being fairly low, it is expected that the FAA will regulate the sector to a greater extent as soon as commercial space flights become more frequent.

Another issue that remains unsolved in regards to suborbital space flights is how to classify a vehicle like SpaceShipTwo, which takes off horizontally with the help of a carrier plane but uses a rocket engine once in suborbital space. Hobe analyzed two possible scenarios: First, “before the separation, the combined aircraft/space vehicle has the characteristics of an aircraft in terms of technical functions, flight pattern and maneuver ability. While connected, it also derives support in the atmosphere from the reactions of the air”. Second, “after the separation, the space vehicle does not satisfy the criteria of the above-mentioned definition of an aircraft. Once the space vehicle is separated from the aircraft, it is being launched vertically like a rocket and does not derive support in the atmosphere” (2010). From an insurance perspective, an underwriter may treat the two processes separately. While connected to the carrier plane, aviation standards would apply, whereas national and international space legislation may apply to the suborbital vehicle after separation from the carrier aircraft.

4.2 ORBITAL SPACE TOURISM

4.2.1 LEGAL FRAMEWORK

In comparison to suborbital flight, the orbital travel experience would (probably) be governed by space law, which has already been defined (see 24 UST 2389). According to Article VII of the Outer Space Treaty, “each State Party from whose territory or facility an object is launched, is internationally liable for damage to another State Party to the Treaty or to its natural or juridical persons by such object or its component parts on the Earth, in air space or in outer space, including the Moon and other celestial bodies” (18 UST 2410). Further, the liability supplement to the Outer Space Treaty defines the term damage as “loss of life, personal injury or other impairment of health and loss of or damage to property of States or of persons, natural or juridical, or property of international intergovernmental organizations.” These guidelines would, at the least, help insurance companies and their underwriters understand the realm of space travel and maybe even support them when writing a policy in order to be a substitute for a liable ‘actor,’ as the insured party.

The legal framework for orbital and suborbital space travel ultimately affects how insurance policies for this industry might look like in the future. While the impact on a lot of fields like launch protection is evident, there are other categories within the insurance industry that will have to adapt to this industry as well.

4.3 LIFE INSURANCE

Space tourism will most likely have a significant impact on insurance companies that focus on offering life insurance policies. Private pilots and skydivers, for instance, take out extra life insurance to cover their added risk. Continued on page 6
Continued from page 5

However, space tourists are currently not required to add some form of special cover for their journey to space (I’m Insured, 2014). Currently, insurance industry experts believe that insurers would have to pay out if a claimant died on a space trip since policies do not usually exclude space travel. While this loophole exists for current policy holders, some life insurers in the United States are considering rethinking coverage for space travel. Life insurance experts recommend anyone looking into getting life insurance to disclose any plans of going to space. If the applicant did not identify their space travel plans, the insurer could avoid paying out, especially in the first two years as life insurers have the ability to contest an application. Most companies do not take into account space travel when writing their policies. MetLife, for instance, stated that it is currently not considering space tourism. Prudential, on the other hand, decided to “postpone any underwriting decision” in case an applicant had plans to travel to space, according to spokeswomen Shelia Bridgeforth. In June 2017, Ironshore International announced that a subsidiary would start offering a policy paying $20 million per trip or up to $5 million per space passenger (Scott, 2014). Neil Stevens, a space insurance expert, expects insurance companies to look at satellite policies, which commonly charge between 2.5% and 10% when writing space insurance. At that rate, a policy paying $1 million would cost between $25,000 and $100,000.

4.4 PASSENGER LIABILITY INSURANCE

Suborbital passenger liability insurance would most likely be similar to insurance policies in the commercial aviation industry. This policy protects the airline from any legal liability to their passengers and insurers undertaking the responsibility to pay all the sums that the insured may become legally liable to (Margo, 2000). Just like United States law requires compulsory liability insurance for passengers when traveling with an airplane, it is expected to see a similar development in the commercial suborbital space travel industry once the first passengers go to space. Once the shuttle is being released from the carrier plane, the orbital space flight policies could take effect. However, no legislation, national or international, requires passengers to have liability insurance when traveling to orbital space. Consequently, they would have to buy their own insurance or sign a waiver. The legal value of these exemptions, which are the minimum requirement per FAA guidelines, is questioned by United States trial lawyers and is likely to be challenged before United States State courts if waiver regulation is not endorsed at a State Law level (Bensoussan, 2010). The critical informed consent requirement may also represent an unreachable objective due to the uncertain nature, extent and availability of the information to be provided to the potential passenger and its inherent impenetrability to the non-professional. Faced with such eventuality and guided by a wise risk management strategy, space tourists would be inclined to buy insurance. The first space tourist, Dennis Tito, obtained insurance through the Russian insurer Avikos back in 2001 and Sheikh Muszaphar Shukor, another space tourist, procured insurance through Marsh with premiums totaling $1 million (Pamela, L. & Scout, M. & Scout, Z. & LLP Rasenberger, 2009). However, with the number of passengers expected to increase, it does not seem feasible to keep writing a policy for each individual traveler. The insurance industry could make use of the increasing numbers of travelers. Insurance already available to commercial transportation could be adapted to this commercial space activity by analogy, for instance: 1. Insurance of space objects and 2. Liability insurance including product and third-party liability. In this way, commercial orbital space tourism could be underwritten by space insurance. A big ‘coverage hole’ also exists during flights which are considered ‘high net worth.’ According to Richard Branson, the owner of Virgin Galactic, 95% of the over 800 customers who bought tickets for $250,000 (originally $200,000) each have a net worth of over $5 million. As a result, under or uninsurability due to shortage or lack of available insurance capacity should be anticipated by the operators and eventually mitigated as this might become an obstacle to the space tourism industry. This ‘coverage hole’ presents a promising development opportunity for specialist insurers. Virgin Galactic plans on lowering the ticket prices once commercial flights are available which will make this journey more affordable for other individuals.

4.5 TRAVEL INSURANCE

Offering travel insurance for space tourists is another potential market for insurance companies. In 2011, the German insurance company Allianz partnered with Virgin Galactic to offer travel insurance for their space flights (Jones & Schäfer, 2011). This made Allianz the first firm to enter the realm of travel insurance for space tourism. The most basic policy offered by the company starts at $700 and goes up to $10,000. Erick Morazin, an account director at Allianz, estimates that “the price of an insurance policy is around 3% to 4% of the total trip cost. So, if we were covering the cancellation of a trip, the loss incurred by the customer would be $20,000 - the price of the original deposit - so the cost of the policy would be around $700”. Allianz is planning to offer up to 20 modifiable plans with options for luggage, medical and other forms of cover to the core cover. Even rising fuel prices can be included in the indemnification. Allianz strategy is to expand their business in the space tourism market beyond their partnership with Virgin Galactic. This aspect of the space travel market could easily offer solid premiums for insurance companies in years to come, especially when the number of flights picks up.

4.6 SPACECRAFT DAMAGE (HULL RISK)

The primary risk an insurance company would consider and analyze in regards to space travel is related to physical damages that may affect the space tourism vehicle themselves in the course of their operation. In the aviation industry, this risk is referred to as hull risk. Just like rockets used to bring satellites to space, hull risk in a space travel insurance policy would refer to hulls, machinery, instruments and the entire equipment of the vehicle. Essentially, all risks of physical loss or damage to the vehicle while on the ground and in transit from any cause except those excluded in the policy. Generally, wear and tear, mechanical breakdowns, war, strikes, riots and effects of radiation would be excluded. If repairable, the policy covers the reinstatement. Most hull coverages are arranged on a ‘Agreed Value Basis.’ This provides that the insurers agree with the insured regarding policy period, the value of the asset and, as such, in the event of total loss, this Agreed Value is payable in full (Bensoussan, 2010). Hull risk may be a major issue in a few years, especially when more frequent flights to space occur. Virgin Galactic is planning with at least two trips a day, which will increase demand and might help in hardening the market. The challenge, as described earlier, will be to define whether the different vehicles must be covered under an aviation policy, space market policy or both. For instance, when Virgin Galactic’s spaceship crashed in 2014, it was, unlike rockets, insured under an aviation hull and liability policy and not a space policy (Cohen & Naidu, 2014). Industry experts like Stephan Hobe, however, expect this to change.
4.7 THIRD-PARTY RISK
The FAA guidelines for space tourism, which were mentioned above, also define how third party risk ought to be covered. Every launch vehicle launched from the United States is required to have compulsory insurance coverage (51 USC 509). The licensee or operator must obtain liability insurance or demonstrate financial responsibility for the maximum probable loss from claims by a third party and to the United States Government. The maximum insurance coverage required for third party liability is $500 million. Above that amount, up to $1.5 billion in third party claims will be paid by the United States Government. For amounts exceeding $1.5 billion, the licensee or operator is liable.

However, some states have established exceptions to third party liability. In 2007, Virginia’s Space Flight Liability and Immunity Act (Space Flight Act) was the first state legislation providing conditional immunity to Federal Aviation Administration Advanced Spaceport Technology (FAA-AST) licensed entities, including Commercial Human Space Flight (CHSF) operators (van Oijhuizen Galhego Rosa, 2013). This includes liabilities arising from human space flight activities. Michael Mineiro stated that the “Space Flight Act prohibits human space flight participants [SFPs as defined in the Act, 51 USC 509, Sec. 50902 (17)], their representatives, heirs, administrators, executors, assignees, next of kin, estate, or any other person bringing a claim on behalf of the SFP from maintaining an action or recovery from a licensed entity for injury resulting from the risk of space flight activities” (2009). Soon after Virginia passed the Space Flight Act, Florida, New Mexico and Texas followed with similar statutes.

4.8 OTHER CHALLENGES
A major problem that insurance providers face is the limited information on launches. According to Chris Kunstadter, it is hard to do the same sort of actuarial math as is done with other types of insurance as incidents with launch vehicles are infrequent. In comparison, insurance for cars is rather predictable due to the high number of cars on the road. Further, on average, launch vehicles are being updated or replaced every five years. This results in higher failure rates as adding or modifying launch vehicles adds an additional risk, especially if the modified parts have not been extensively tested yet. Another challenge to consider is the fact that failed launches are usually total losses. Payload and launch vehicle are lost and there is essentially almost no salvage value. Richard Parker, Divisional President at Assured Space, disagrees to some degree as he predicts that the industry will offer more ‘standardized’ products when it comes to manned missions into space, resulting in lower failure rates.

Despite all these challenges, the space insurance industry also has significant upsides that attract investors. For instance, each company knows right away whether a launch is a loss or a gain. Further, insuring rocket launches is uncorrelated with any other type of insurance. Even if a hurricane wipes out entire counties, the market for space travel and launch protection remain untouched (Fahey, 2016). XL Catlin predicts that the current insurance market weakness will have recovered by 2020, right around the time when regularly commercial space flights are planned.

5 IMPACT ON REINSURANCE
Considering the current developmental stage, the impact on the reinsurance industry today is relatively small. A handful of insurance companies currently dominate the space travel environment and reinsurance companies are mainly concerned with launch protection for satellites. The current soft market conditions for space flight insurance would also apply to the reinsurance industry. Nonetheless, if Virgin Galactic can offer regular flights starting 2019 and Blue Origin starts bringing tourists into space, a whole new market could emerge, relieving the pressure. The overall outlook is positive, but the reinsurance industry also must consider the downsides, which prevents many companies from entering the market.

5.1 ACCIDENTS
‘It is a matter of when not if!’ The fact is that sooner or later, an accident will happen, which is the precise reason why sound policies must be offered in the space travel market. The problem with the activity of flying to space is that accidents are usually a total loss. It does not take much for the claims to outweigh the premiums, as happened in 2013 (see figure 1). Chris Kunstadter states: “The nature of this business is very volatile, you do not have many losses, but when you do, they are large.” A few bad launches a year can cause the failure rate to bounce between 3% and 10%. Too many failed launches can easily force competing insurance as well as reinsurance companies out of the sector, which would lead to increasing margins and a hardening of the market. While some reinsurance companies would profit, others will lose. This risk has to be carefully analyzed by the reinsurance companies.

Figure 1: Chris Kunstadter, XL Catlin

Further, an accident depending on the circumstances could easily jeopardize the entire nascent personal spaceflight industry (Fahey, 2016). When Virgin Galactic’s spacecraft crashed in 2014, multiple people demanded their deposit for their tickets back. With the high ticket prices, many people demanding refunds might pose a threat to some insurance companies as well as their reinsurers, especially in regards to travel insurance.

6 CONCLUSION
Space tourism companies like SpaceX and Virgin Galactic are not planning the first commercial flight until at least 2019, but companies need to prepare for the unavoidable risk that will emerge from the increased frequency of space flight. Despite the currently hostile environment, the outlook remains positive: Many specialty insurers and industry agencies have already begun to prepare and start assessing the risks that come with this activity. The FAA published industry outlooks as early as 2004 and a handful of insurance companies like Allianz are already trying to push...
into the realm of space insurance by laying out what policies could look like. Once space flight is commercialized, it is expected that companies like Bigelow Aerospace will work on further improving space travel. The Las Vegas based company is planning on offering inflatable modules which can be used to create a hotel in space. One module is already being tested in space and was attached to the ISS in 2016. With space travel progressing at such a fast pace and with more challenges and ideas to be realized, all industries related to the aerospace market must sufficiently prepare for the future. After all, providing coverage for space tourists might actually be somewhat like rocket science.

7 WORKS CITED


– Commercial Space Launch Activities, 51 USC 509, Secs. 50901-50923


– Convention on International Liability for Damage Caused by Space Objects, 24 UST 2389, 961 UNTS 2389


– Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, 18 UST 2410, 610 UNTS 205, 6 ILM 386 (1967)


7.1 ACKNOWLEDGEMENTS

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– Felix Vogler – Underwriter (Arch Re Bermuda)

– Richard Parker – Divisional President (Assure Space)

– William Bernens – Underwriter (Arch Re)
Enterprise Risk Management: Captive Insurance, Reinsurance, and Driving Stakeholder Value

By M. Michael Zuckerman, JD, MBA, ACI

Abstract
There is an increasing number of organizations that recognize the value of Enterprise Risk Management. An important aspect of ERM is building effective business continuity management process. And Business Continuity Management requires a funding source to address an adverse event. Captives armed with Reinsurance and Alternative Risk Transfer capacity can provide this funding. The captive if well run can also drive its parent’s ERM process. Evidence proving the value of a captive and Reinsurance as ERM tools is growing. And the opportunity for captives and Reinsurance is limited only to the extent of the Risk Management Industry’s imagination. The captive’s ability, therefore, to positively impact its parent ERM program as it continues to evolve will result in more resilient organizations increasing stakeholder value.

The historical importance of Re/Insurance to risk pooling, which is a key driver of our global economy, is not lost on me as I sit in a coffee shop writing this article. The Re/Insurance Industry is also a key variable to building an organization more resilient to risk. The ship-owners who gathered in Edward Lloyd’s Coffee House in 1686 were managing risk using Marine Insurance as one of its tools to ensure its business continuity strategy, such as it was in the 17th century! The transition from Insurance Management to Risk Management which began circa 1964 was just as important to building a resilient organization, however. Dr. H. Wayne Snider, my risk professor when I was a graduate student at Temple University, wrote in his book, Risk Management, that:

“The interests of the Risk Manager are everywhere, and our examinations are limited only by the imagination to which we attach our efforts.”

In my opinion, Dr. Snider’s perspective on risk management laid the groundwork for what would become Strategic and Enterprise Risk Management. Organizations are seeking to become resilient to the uncertainty that matters to its mission. They are, therefore, either developing an Enterprise Risk Management (ERM) framework/process or have a robust program in place.

Three recent studies support this observation that Traditional Risk Management (TRM) is evolving towards a broader definition of risk. And this evolution is leading to broader acceptance and application of ERM principles. There is no such thing as a universal implementation of ERM. Each organization implements a hybrid framework that reflects its culture and needs. My thesis is that the use of captive insurance companies (captive) fueled by Reinsurance and Alternative Risk Transfer is integral to ERM and this evolutionary process.

The National Association of Corporate Directors (NACD) reports in its 2017-2018 NACD Public Company Governance Survey that “The board’s understanding of risks and opportunities affecting company performance” is the most important area for board improvement over the next 12 months. The Risk and Insurance Management Society (RIMS) reports that 72% of respondents to its 2017 ERM study have a fully (24%) or partially (48%) integrated ERM program. Since 2013 both categories combined Continued on page 10
There are a growing number of case studies that underscore the use of captives as a strategic risk management tool.

have increased by 10%. Another 13% report that they have begun to investigate an ERM program. The AICPA and North Carolina State’s 2018 State of Risk Oversight study reports that 49% of its largest organizations have complete ERM processes in place, while just 22% of all respondents describe their risk management program as mature or robust. This study does report, however, that “most boards of directors (68%) are requiring senior management to increase its involvement in risk management”. ERM, according to RIMS, is defined as:

- a strategic business discipline that supports the achievement of an organization’s objectives by addressing the full spectrum of its risks and managing the combined impact of those risks as an interrelated risk portfolio.

To this end, ERM promotes the efficacious use of risk data and information, thereby providing a higher level of risk analysis which improves strategic and operational decision making. Moreover, the strategic use of a captive, limited only by our imaginations and regulatory constraints which vary by domicile, gives the organization access to the reinsurance market which provides capacity for the efficacious captive. A well-run captive will only enhance the ERM process. Moreover, Reinsurance and the Alternative Risk Transfer (capital) markets give captives the capacity to exploit this critical risk management tool which contributes to the success of an organization’s ERM process.

COSO introduced its third version of Enterprise Risk Management in June, 2017. In the introduction to this revised framework, COSO makes the point that every organization, whether for-profit or nonprofit, exists to provide stakeholder value. And in concurrence with the RIMS definition, COSO further explains that “…Risk affects an organization’s ability to achieve its strategy and business objectives.” Furthermore, the decisions made by the board and senior management will impact entity value according to COSO. The higher the quality of risk data that is available to decision-makers, therefore, the more likely these decisions will result in increasing organizational value. The risk manager must bring to the strategic planning table “have you thought about this” as opposed to the attitude of “no” that often, at times unfairly, characterizes TRM thinking. The ERM process requires that organizations identify and assess its inherent and residual risks to understand its risk priorities before it can evaluate how it is or should be managing risk. The ERM focus is on all risks, not just insurable risks. And the ultimate objective of the organization is to both mitigate and exploit risk to achieve its strategic business goals.

As Professor Snider alluded to, the risk manager’s examination of a material uncertainty that could prevent an organization from attaining its objectives is unlimited in scope. An entity cannot manage what it does not know. It cannot manage risk without information and data. By better understanding, an entity’s risk profile, the more strategic the organization can be in how it treats risk. The more effective the risk treatment is, the greater the likelihood that the entity will achieve its objectives creating value for its stakeholders. And the captive concept is a key risk management tool. It requires capital but operates outside of the commercial insurance market enabling the risk manager to be more creative and innovative in solving risk management challenges. Furthermore, the well run captive is a key risk management tool that will drive ERM and manage risk because of its unique characteristics and the capacity available from Reinsurance and the Capital markets.

In summary, the ERM program will improve strategic decision making and add value to the organization. All organizations employ a hybrid approach to the treatment of risk which includes a combination of loss prevention, loss reduction, risk transfer, and risk retention. The use of a captive supported by reinsurance to fund exposures is a key variable in this risk treatment formula that can only enhance the ERM process increasing the organizational value if properly funded and managed.

The captive is a legal entity requiring a board of directors to govern it. The captive must employ best management practices to be strategic. And the board must be filled by individuals with the appropriate skills including risk management, re/insurance, financial, and knowledge of the insureds’ operations. The captive’s ultimate goal is to enable the parent, or parents in the case of a group captive, to achieve their risk financing goals. And risk financing goals are intended to enable the organization to meet its strategic objectives. But even more important is that the captive can help drive ERM because it becomes a central depository for risk data and provides a platform from which senior management can observe and discuss all aspects of risk and its risk management process.

Organizations structure captives as direct issue insurers or reinsurance captives. A reinsurance captive reinsures a commercial insurer, most likely a commercial insurance carrier used as a legal front for the program, that enables the parent to satisfy regulatory, contractual, bond covenants, or stakeholder insurance requirements. Either structure may require support from the commercial insurance market, or the reinsurance market (reinsurance or retrocession). The very nature of reinsurance will provide the captive parent greater access to capacity to assume risk, more flexibility negotiating coverage terms, insurance rate arbitrage, and more control over claims management. For example, purchasing excess of loss reinsurance for the captive is preferred to excess of loss commercial insurance independent of the captive as Don Walker and Kevin Downs implied in the April 2004 Captive Insurance Company Reports (IRMI) under Reinsurance Market Realities:

Reinsurance underwriters are generally more willing to be creative than pure excess insurance underwriters.

This is further supported and developed by Anne Marie Towle in her article, Captives: An Efficient Tool for Catastrophic Losses, the January 2018 Captive Insurance Company Reports (IRMI) cited:

One thing that is clear through decades of watching them [captives] excel is that captives work well for primary retentions, excess layers, or a hybrid of both. Being creative in designing a program that is applicable and flexible for an organization is a hallmark of captives. A captive provides more overall insurance program control, making it easier to direct where risk is transferred and financed within an overall risk program. Assessing additional capacity through the reinsurance market and dictating coverage terms may be an easier
solution with a captive as one option to defray costs. The alternative from the commercial markets is increased premiums or exclusions within the terms and conditions that may not be beneficial or cost-effective for an organization.¹²

The captive is an insurance company and can buy reinsurance/retrocession which a pure self-insured non-insurance organization cannot, an important reason for implementing a captive. Reinsurance or retrocession provides the following benefits for the captive:

• Stabilizes loss experience
• Increases its ability issue higher limits of coverage
• Protects against a catastrophic losses
• Enables the captive to meet regulatory solvency requirements
• Facilitates captive closure, for example, when addressing multiple captives owned by a single parent following a merger or acquisition by way of a novation or loss portfolio transfer¹³

Marsh's 2018 Captive Landscape Report: 50 years of Risk Financing Innovation reported that 42% of its clients identified accessing the reinsurance market as a key driver for implementing a captive insurance program. I would expect this to increase for reasons cited above and because of the available Reinsurance/Alternative Risk Transfer Industry capacity.

Moreover, Aon reports that the most cited reason for forming a captive is because it is a "Strategic Risk Management Tool."¹⁴ 37% of respondents cited this as the reason for forming a captive up from 18% in 2013. This trend indicates that more captive owners view it as a strategic risk management tool. In other words, the captive is a vehicle that enables the owner to meet its risk financing goals, more efficiently deploy risk capital, and achieve critical business objectives. Risk capital according to IRMI is capital required to finance the consequences of business risks.¹⁵ And reinsurance only enhances the strategic nature of captives.

Kathleen Waslov put it best in her September 2012 Captive Insurance Company Reports (IRMI) article, Facilitating Strategic Risk Management: Captives have long been a tool for the execution of risk financing strategies to support their parent companies' broader business strategies including, for example, revenue growth, expense reduction, and cost containment. Captives can deliver cost savings, improved coverage terms, access to reinsurance capacity, enhanced cash flow, and, most importantly, control of the financial capital and informational assets required to support corporate risk exposures. These outcomes support the corporate objectives of managing downside risk, but also exploit the opportunity of upside risk.¹⁷

Furthermore, the strategic use of a captive enables its parent “…to hold, invest, and control assets and related earnings rather than ceding control – and upside gains- to third parties.”¹⁸ Specifically, Waslov states that the following are advantages of what I interpret to be a “strategic captive”:

• Accountability for loss control and claims outcomes
• Centralized governance of risk – producing operations
• Reduced unit cost of risk through the pooling of previously decentralized liabilities
• Improved dialogue among headquarters and local operations on topics of corporate liabilities¹⁹

Waslov was discussing the strategic benefit of funding employee benefits in

A strategic captive, therefore, with a skilled board can enable it to:

• Hold the various insureds or business units accountable for losses by way of the cost of risk allocation or other underwriting techniques
• Discuss claims and risk management issues in depth at board or subcommittee meetings
• Centralize an organization’s risk data
• Reduce risk capital (or cost of risk) overtime
• Stimulate more robust risk communication among the insured(s) owner(s) at home
• Create a platform for strategic risk management planning using the captive to enable this strategy

Captives have long been a tool for the execution of risk financing strategies to support their parent companies’ broader business strategies including, for example, revenue growth, expense reduction, and cost containment.

There are a growing number of case studies that underscore the use of captives as a strategic risk management tool. Snap-On is one that was discussed at the 2014 RIMS Conference. Snap-On uses its wholly-owned captive as an entrepreneurial captive to sell required insurance and supplemental coverage to its franchisees. [The captive reinsures the program using fronting arrangements, making it acceptable to insurance regulators].²⁰ The coverage offered includes Truck and General Liability, and Inventory(Property) coverage. As I interpret the case, the ERM issues that Snap-On was addressing included strengthening its supply chain²¹ and protecting the Snap-On brand/reputation. An online article (March 24, 2014) quoting Snap-On’s risk manager sheds light on Snap-on’s strategic thinking:

Dan [Dan Kugler was the Risk Manager] attributed much of Snap-On’s success to its unique brand strength, strength of its franchisees and spirit of innovation. The Snap-On tool company’s captive insurance program is a powerful corporate asset and the fruit of both innovative thinking and a passion to drive their business model. The Snap-On model was built on the success of its franchisees, and Snap-On made insurance a key component of its franchise arrangements. By doing so, it has been able to help franchisees remain healthy, whether adverse events and losses and do so in a [cost effective] manner [Snap-On's captive insurance companies provide insurance services to its franchisees. Franchisees are critical to Snap-On's product distribution].²²

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An earlier interview with the Captive Insurance Company Reports (IRMI) in 2001 quoted Snap-On’s risk manager as characterizing this strategic use of a captive accordingly:

This [the captive] has aligned risk management to Snap-On’s business units. It has enhanced the department’s working relationship with the business units and has refocused perception of the department from a naysayer to a solutions provider, from a cost allocator to a revenue enhancer. The result: a sharing of risk management values and building of bridges inside the organization. For the business units, it has enhanced Snap-On’s profits. Sales of products have increased, as has customer satisfaction. The dealers now have a stronger relationship with Snap-On, and Snap-On has been able to extend its product and service offerings.23

Claims management is controlled and managed by Snap-On’s wholly-owned licensed service providers incorporated in Wisconsin and the United Kingdom. Again, my interpretation of the public information available is that Snap-On clearly strengthened its supply chain and enhanced its reputation increasing stakeholders’ value. Snap-On’s stakeholders that benefited from this risk management strategy include its dealer/franchisors, customers, shareholders, and employees.

The Health Care Provider Industry (Healthcare) has been a leader in using strategic captives. By Provider, I mean healthcare systems, accountable care organizations, hospital groups, physician groups, etc. The Healthcare Industry’s dominance of the captive industry is evidenced by the following:

• More than 50% of all premium written by Risk Retention Groups (RRGs) comes from Healthcare24
• Health care is Vermont’s largest captive insurance industry sector, with a total of 100 active captives25
• Cayman [Islands] is the leading jurisdiction for healthcare captives, representing 35% of all Cayman captives. Medical Malpractice Liability continues to be the largest primary line of business with 257 companies, and26, …with almost half of its captives represented by this sector. Medical Malpractice Liability (MedMal) continues to be the largest primary line of business with approximately 32 percent of companies reinsuring MedMal27

My experience has been that many of the Healthcare captive programs employ a direct issue captive for its excess of loss coverage written on an indemnification basis for the full program limit of liability reinsuring this exposure instead of the captive owner buying commercial insurance from the Excess and Surplus Lines Market.

In 1976, The Harvard Medical Institutions (HMI) (All member hospitals and physicians) licensed the first medical professional liability (med-mal) captive, the Controlled Risk Insurance Company (CRICO), in the Cayman Islands.28 CRICO was formed in response to the Property and Casualty Insurance Crisis of the mid-1970s. There have been three Commercial Insurance Market (market) Crises that have driven the growth in healthcare owned captives:

• The mid-1970’s was characterized by loss of market capacity for this coverage
• The mid 1980’s was characterized by loss of market capacity for this coverage and the nearly complete evolution of occurrence-based coverage to claims made coverage, and saw the rise of RRGs; and,
• The early 2000’s experienced a loss of market capacity including the

Healthcare owned licensed commercial insurance companies formed in the 1970’s in response to the insurance crisis29

The Healthcare entity typically enjoys the following benefits from captive ownership:

• Reducing cost of risk
• Centralize risk data
• Captive’s parent control over claims management usually managed by its in-house claims management staff or a contracted third-party administrator on-shore (off-shore captives should not issue duty to defend policies)
• Focus on Clinical Risk Management and, quality of care, and better outcomes
• The use of a commercial insurance front for regulatory or contractual compliance
• Direct issue excess of loss insurance supported by reinsurance in excess of a desired or negotiated retention
• And many such as CRICO, for example, have substituted commercial insurance company fronts with Risk Retentions Groups reinsured by offshore captives reducing frictional costs by eliminating the need for a front
• The captives continue to fund other exposures30

These benefits also provide a positive ERM impact by improving operations and enhancing reputation. The Harvard CRICO Case is an example of this. This Case Study does not focus primarily on risk financing. It presents the risk control (prevention and mitigation) benefits that arose from forming CRICO. The ERM story lies in what the formation of CRICO and its on-shore agent Risk Management Foundation (RMF) did for HMI’s Risk Control program. RMF was formed to provide risk management services for HMI entities and physicians insured by CRICO. The CRICO Board and subcommittees were made up of experienced physician leaders including chief medical officers, hospital executives (including operations, quality, and safety skills), finance and investment professionals, and academics.31 It is this type of skilled board that will drive ERM practices reducing the cost of risk and driving improved patient safety and outcomes.

CRICO/RMF also had a mission from inception that aligned its operation with ERM principles:

...mission is to provide a superior medical malpractice program to our members and to assist them in delivering the safest health care in the world.

To fulfill this mission, we…

• Offer comprehensive, competitive coverage
• Provide expert legal defense and customer service
• Protect providers’ assets and reputations
• Develop solutions to increase patient safety
• Foster collaboration between local and national experts

[ case commentary] CRICO/RMF’s proven ability to combine strong insurance protection with expert legal services and best practices in patient safety enables physicians, institutions, and employees to focus their considerable expertise on their patients and their research.32

RMF eventually took over claims management from outside contractors and this began the claims data analysis process that led to the
development of patient safety best practices and specific Risk Management initiatives to reduce frequency and severity. The case focused on RMF’s work in such areas as high-risk practice areas, office-based care, developing hospital accountability for risk, emerging risks, and providing research grants to enable the implementation of improved risk management initiatives and perform patient safety research. Many Healthcare owned captives do provide these types of grants paid out from retained earnings and often subject to regulatory approval. This all led to significant risk management organizational change in the following areas:

- Risk Management Assessment and Data Services—Using risk claims management data to identify, assess and address causative factors
- Risk Management Information Systems
- And development of educational tools and systems

Several benchmarks discussed in the Case Study indicate the success of this program. In 2004 CRICO opened 2.16 claims per 100 covered physicians. In 2008 it opened 1.76 claims per 100 covered physicians. A 19% reduction in frequency. And the case also provides evidence that premium charged by CRICO from 1998 through 200 grew at a 33% slower rate than the commercial insurance benchmark while CRICO continued to spend premium income on risk control initiatives.

While there is no public information available about CRICO’s Excess of Loss Coverage, they did lead a discussion at the 2015 Cayman Captive Conference about The Art and Science of Managing Capital for captives. There was a discussion that included using Reinsurance as a capital management tool.

A general scan of current Risk Management publications reveals that Healthcare owned captives are expanding coverage for its parent(s) to include (not all inclusive):

- Professional and General Liability
- Cyber liability
- Medical stop loss
- Property deductibles
- Billing audit expenses
- Regulatory actions
- Physician professional misconduct
- Workers’ Compensation
- Environmental Impairment Liability
- Supplemental physician benefits

Moreover, the Marsh’s 2018 Captive Landscape Report reports data that underscores the expanding use of captives for most industries.

Among other benefits, captive owners gain flexible options to finance emerging and high-severity risks, such as cyber liability, terrorism, and cyber terrorism. From 2012 through 2017, Marsh-managed captives showed cumulative growth of:

- 333% accessing international terrorism pools
- 240% writing cyber liability
- 83% in coverage under the Terrorism Risk Insurance Program Reauthorization Act of 2015 (TRIPRA)

As previously mentioned, some Healthcare captives do issue full limits of liability excess of loss insurance policies, for example, reinsuring all or most of this exposure. And expanding into other coverage types will require access to reinsurance. The University of California, which formed its captive in 2010, published in its 2012-2013 Enterprise Risk Management Report that a reason for owning a captive is:

**Captives provide preferred access to international reinsurance markets, which improves terms and capacity.**

This report also reinforces the thinking that a reinsured direct issue policy enables the captive and its parent to maintain control over coverage terms and claims management:

…Because the captive controls and issues the captive insurance policy (or “policy of indemnification”), it is able to structure terms and conditions. Instead of issuing their own policies, reinsurers will be asked to accept the terms and conditions of the captive company. This is known as “following form”. One advantage of this arrangement is that terms and conditions can be structured to enable the parent to control claims all the way up to the ultimate limit. This eliminates control of claims by insurers and provides UC final decision making authority over if and when to settle, regardless of the amount of the claim…

Cyber liability exposure is a major exposure for most industries but especially so for Healthcare. The impact on operations and reputation from a cyber-event may cripple the Healthcare entity. In ERM terms, Cyber is an operational exposure that has significant financial, strategic and reputational consequences. The Academic Physicians Insurance Company (OU Physicians) [University of Oklahoma] chose to fund this exposure in a direct issue captive and reinsure the exposure. Developing a coverage statement and forecasting a funding amount will always be a challenge. Employing a direct issue captive using cyber reinsurance provided the captive owner with the experience and resources needed to properly manage this coverage, as opposed to funding retained losses in the captive and transfer the risk excess of the self-insured retention to the commercial marketplace.

The Metropolitan Transit Authority (MTA) owns a licensed a captive in New York State, First Mutual Transportation Assurance Co., to provide property insurance. In 2012, the captive purchased $800M of reinsurance. Following Super Storm Sandy, the captive was only able to secure $500M of reinsurance. The MTA used its captive in 2013 to establish a Special Purpose Reinsurance Vehicle known as Metro Cat Re in Bermuda to issue Catastrophe Bonds raising $200M of capital from investors specifically for storm surge reinsurance. What is so interesting with this case is the use of the captive to access the capital markets for a specific risk management need directly impacting the MTA’s business continuity management. This goes to the heart of operational risk and building a more resilient organization by ensuring adequate contingent capital for business continuity management to rebuild in the event a defined storm surge event.

In conclusion, the proper use of a captive by a single parent or group with access to Reinsurance and Alternative Risk Transfer capacity is integral to the ERM process adding value to the insured organization and its stakeholders. The cases presented demonstrated the value of a captive and reinsurance as ERM tools. The value provided to the entity, I believe, is demonstrated by Snap-On, MTA, CRICO, University of California, and the University of Oklahoma cases. The challenge is always demonstrating the amount of value. But that issue is for another paper. While the information provided is a mere summary of a few cases, clearly there is an evolutionary process towards a more robust ERM process albeit unique in its principles.

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framework, and processes to the individual organization. Furthermore, there is ample evidence of the growing importance of captives and reinsurance in ERM as it continues to evolve resulting in more resilient organizations and increasing stakeholder value.

Footnotes
2 The National Association of Corporate Directors. (December 2017). 2018 Governance Outlook: Projections on Emerging Board Matters, pp. 5-6. (71% of all respondents), A Publication of the National Association of Corporate Directors and Partners AIG, Deloitte, Grant Thornton LLP, Katten Muchin Rosenman LLP, Palo Alto Networks, Spencer Stuart.
4 Ibid
5 Ibid
7 Ibid
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21 The following is from: CIC Services Retrieved from http://www.captivatingthinking.com/snap-onlevaages-captive-to-support-franchisees/
22 Ibid
29 IBID pp. 3-5
32 IBID at p. 8
33 IBID at p. 24
34 IBID
35 IBID p. 14 and 23
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41 Artemis, (July 31, 2013). MetroCat Re completes at $200m. MTA pleased, but may have liked more Retrieved from http://www.artemis.bm/blog/2013/07/31/metrocat-re-completes-at-200m-mta-pleased-but-may-have-liked-more/ and Artemis, (July 15, 2013). First Storm Surge Catastrophe Bond, MetroCat Re, Ltd. 2013-1 Launches, Retrieved from http://www.artemis.bm/blog/2013/07/15/metrocat-re-completes-at-200m-6ta-pleased-but-may-have-liked-more/
Head Games: The Concussion Crisis

By Chris Nowinski, Ph.D

Followed by

Head Games: A (Re)Insurance Perspective

By Michael J. Kurtis, Esq.

About the Author

Dr. Nowinski is the founding CEO of the Concussion Legacy Foundation, a non-profit organization dedicated to solving the sports concussion crisis through education, advocacy, and research. Chris co-founded the VA-BU-CLF Brain Bank and the BU CTE Center, where he serves as the Outreach, Recruitment, Education, and Public Policy Leader. He received his Ph.D. in Behavioral Neuroscience at Boston University School of Medicine, and is the author of the book Head Games, as well as 25 medical journal articles. Dr. Nowinski was a featured speaker at IRUA’s 2014 Annual Meeting and Conference.

Abstract

Concussions and chronic traumatic encephalopathy (CTE) dominate the news during football season. When I wrote Head Games: Football’s Concussion Crisis in 2006, there were only two cases of CTE diagnosed in football players. Not only was the NFL putting players who were knocked unconscious back into the same game, but they were bragging about it. A decade of research and advocacy has changed the conversation, and now everyone is scrambling to understand the scope of the concussion, and now CTE, crisis.

I never believed concussions were a big deal until they affected me personally. I was an All-Ivy defensive tackle at Harvard University, and left the game without ever having a diagnosed concussion. I then broke into professional wrestling, and had success as a bad guy character on Monday Night RAW until a kick to the chin gave me symptoms that haven’t fully cleared yet, fifteen years later. My post-concussion syndrome was daily headaches and a difficult sleeping disorder where I acted out my dreams, and although instances are less frequent, I still know something is wrong because I can’t work out hard without feeling sick.

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CONCUSSIONS
In 2007, I co-founded the non-profit Concussion Legacy Foundation to change how we talk about and manage concussions in sports. While we’ve had tremendous success protecting athletes, with concussion laws now in all 50 states, people slip through the cracks every day. Concussions are called an invisible injury for very good reasons. They don’t show up on imaging, there are no objective tests for concussion, and often the person with a concussion is the last person to know it.

The state of the science has changed in the last decade. Concussions are a temporary change in brain function caused by direct head impacts or rapid head movement after a body blow. There are dozens of signs and symptoms of concussion, with the most common being headache, dizziness, and confusion. Symptoms may appear right away, but most symptoms have delayed onset by hours or days, and the symptoms evolve over time.

It’s impossible to predict how long symptoms will last after injury, but the average person gets better within a few weeks. While rest is advised for a day or two after injury, recent research has shown that putting patients in a dark room for days until symptoms clear may make the injury worse. After an initial rest, patients should try to begin to return to life as tolerated, letting exacerbation of symptoms guide activity.

Unfortunately, ten to twenty percent of people have symptoms that last months or years, often labeled post-concussion syndrome. They require rehabilitation, which could be visual, vestibular, cognitive, or many other forms of therapy. However, the research on the long-term effects of a concussion or two is muddied by research on CTE, which appears more closely linked to the accumulation of thousands of blows to the head rather than a few isolated concussions.

CTE
I co-founded the VA-BU-CLF Brain Bank in 2008 as a collaboration with the Department of Veterans Affairs and Boston University, creating the first research center in the world dedicated to CTE. CTE was first identified in boxers and named punch drunk in 1928. It was so well accepted in the culture that Marlon Brando played a punch drunk boxer in On the Waterfront in 1954. By 2002, only 39 cases of CTE among boxers had been published in the medical literature.

Led by Dr. Ann McKee, our team has studied the brains of nearly 500 athletes and veterans. In July, our study of 202 deceased former football players was published in the Journal of the American Medical Association. We were shocked to diagnose CTE in 177, or 88 percent of them, including 110 of 111 NFL players. CTE is an ugly disease, as what begins as personality change can turn into depression, impulsivity, aggression, and memory and cognitive changes that evolve into dementia. It is not found in the general population without brain trauma exposure.

We have learned the risk of developing CTE and associated symptoms appears best correlated to the number of years played and number of thousands of hits to the head. Age matters too. Our team, led by Dr. Robert Stern, published a recent study finding that football players who began playing before age 12 were twice as likely to have problems with behavioral regulation (e.g., impulse control, controlling emotional responses) in adulthood, and three times as likely to have problems with depression. The relationship was independent of the number of years they played or the highest level played (i.e., high school, college, pros), so it was not caused by having longer careers. This follows Dr. Stern’s studies on NFL players finding those who began before age 12 were more likely to have both impaired memory and mental flexibility as well as structural brain abnormalities seen on MRI in a critical region of the brain involved in cognition.

CONCLUSION
These are difficult times for professionals in the medical and insurance fields. We still lack effective ways to accurately diagnose concussion and CTE in the living. We are in dire need of effective therapies to manage symptoms or slow or stop progression. With all the unknowns, one thing that is clear is that we need to invest in prevention, as once this genie is out of the bottle, we cannot get it back in. At the Concussion Legacy Foundation, we are dedicated to the advancement of concussion and CTE research and prevention. If you ever need professional advice or personal advice for a loved one, please don’t hesitate to reach out.
Head Games: A (Re)Insurance Perspective

By Michael J. Kurtis, Esq.

Abstract

Chronic Traumatic Encephalopathy or CTE, has become a regular topic of discussion in the sports world, particularly in connection with American football. As medical science has advanced, the connection between head impacts of the kind associated with football and the brain changes that lead to CTE have become more widely accepted. Lawsuits have been filed against leagues, athletic associations, coaches, trainers, doctors, schools, school districts, universities, helmet and equipment manufacturers, and a host of other individuals and entities alleging a causal link between the activity that they sponsor and the development of CTE. Chris Nowinski’s preceding article focuses on the science and impact of concussions and CTE. As this issue continues to gain prominence, insurers and reinsurers will be well-served to understand how this issue translates into claims and, in turn, the coverage questions these claims evoke.

About the Author

Mike J. Kurtis, Esq. is a Vice President of Claims at Maiden Re in Mount Laurel, NJ, where he focuses on complex claim analysis, claims administration, analytics and claims processes to ensure efficient and effective claims operations, compliance and client service. Mike is also tasked with management and development of the Claims Client Services Unit. Prior to joining Maiden Re, Mike spent 17 years as outside counsel, representing insurance and reinsurance clients in litigation and arbitration, as well as in transactional and regulatory matters. Mike received his Juris Doctor from Brooklyn Law School and a BA in Psychology from Villanova University. He is a member of the IRUA Journal of Reinsurance Committee and, prior thereto when with a law firm, a member of the JOR Industry Advisory Panel. He is a past author of articles published in the Journal of Reinsurance.

Chris Nowinski’s article focuses on the “what” of concussion and chronic traumatic encephalopathy (CTE). The second part of the discussion – for insurers and reinsurers – is how this issue translates into claims. Concussion and CTE have been the subject of numerous articles, television news stories, documentaries, blogs, commencement speeches, and even a feature film. Athletes of all ages are affected – from young children to retired players – in various sports that involve some form of impact to the head. The specter of such injuries are as much a part of the conversation as the sports themselves. In the days before this article was published, the story of yet another college football player’s suicide – and the fact that his brain tissue resembled that of a 65-year-old man – was the subject of national headlines. Football has featured prominently in the discussion of this issue and in the lawsuits that have been filed. Several high-profile lawsuits, and a multitude of lass-publicized suits, have been filed against leagues, athletic associations, coaches, trainers, doctors, schools, school districts, universities, helmet and equipment manufacturers, and a host of other individuals and entities. These include a multidistrict suit filed by former professional players against the NFL; suits by college athletes against the NCAA; by high school players against school districts, state athletic organizations, and coaches; and even by youth players against football organizations that cater to the youngest athletes. The NFL reached a settlement with players.

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that is valued at approximately $1 billion. At the collegiate level, the NCAA recently reached a settlement in which it agreed to establish a $70 million brain trauma trust fund for student athletes. Most recently, a lawsuit filed by the wife of a former player for the University of Texas at Austin was the first CTE suit to proceed to trial before resulting in a settlement on June 15, 2018.

INSURANCE DISPUTES

Even as the most highly-publicized lawsuits are being resolved via settlements, the coverage disputes – which historically tend to take on a life of their own – are largely in their infancy. The existence, and causes, of CTE are an essential piece of the puzzle for claimants who must prove their cases, but also for the defendants and their insurers, who have already become embroiled in the debate over coverage.

As noted in Chris Nowinski’s article, concussions and CTE do not show up on imaging and there are no objective tests. Based on current scientific and medical knowledge, CTE can only be conclusively (i.e., physiologically) diagnosed after death by way of brain autopsy. CTE is not a “single hit” injury – it is a cumulative injury. Nowinski notes that the risk of developing CTE and associated symptoms correlates to “the number of years played and number of thousands of hits to the head” – described as a dose-response relationship, akin to what is observed with the relationship between smoking and lung cancer.

This discussion focuses primarily on standard general liability concepts, but clearly various lines of business and different types of insureds have been, and may yet be, implicated. Claims against coaches for (perhaps) repeated failures to remove players from games; against trainers and doctors for failure to identify or diagnose symptoms of concussion that (arguably) contributed to the development of CTE; against athletic associations, universities and other athletic bodies for failure to implement safeguards, give warnings, or otherwise protect players from injury – these may fall under various errors & omissions, professional liability, and other specialized coverages that have nuances to how coverage is triggered and/or excluded, and commonly provide “claims made” rather than “occurrence” coverage. That said, a key starting point for insurers (and reinsurers) is to ascertain whether certain books of business hold the potential for exposure to CTE and related claims.

CTE is, by its very definition, a latent injury. It is described as a progressive degenerative disease, and because the symptoms may not manifest until long after the activities that caused it, it may not be possible to identify a particular blow (or blows) to the head that caused it. CTE seems to bear similarities to asbestos, lead exposure, and other latent injury claims. (Re)insurers may find guidance from the approaches taken to those types of claims with regard to such issues as trigger, number of occurrences, and allocation.

TRIGGER OF COVERAGE

Trigger of coverage is a common point of contention in latent injury claims. CTE results from a cumulative effect of more than one blow to the head, but the claimants often have engaged in the sports activity for several years, yet the symptoms may not be apparent until years after the activity ended. The applicable trigger theory will determine the number of years of coverage potentially at issue.

The “exposure” trigger implicates policies in effect when the claimant was exposed to the injury-producing activity – but is that each blow to the head, or each game, or season, or some other exposure? In jurisdictions applying the “manifestation” trigger, how is manifestation defined where the changes to the brain cannot be observed until after the claimant is deceased? If the behavioral changes described by Chris Nowinski and his peers constitute manifestation, how is that determined? By testimony from friends and family members, by testimony from neuropsychologists, or perhaps both? Determining when the injury manifested may be challenging.

The “injury-in-fact” trigger finds coverage in each policy year during which the injuries actually took place, which would seem to raise the same kinds of questions as manifestation. Under the “continuous” or “triple” trigger, coverage exists in every year from the claimant’s first exposure through manifestation of the injury – which could arguably be from the claimant’s first time donning a helmet and pads to their date of death years or decades after they stopped playing.

NUMBER OF OCCURRENCES

Also ripe for dispute between insurers and policyholders is the number of occurrences comprised by CTE claims by one or more athletes who perhaps saw varying time on the field over different periods of time. The “cause test” or the “effects test” are commonly applied. Would the occurrence be each blow to the head of each player? Or perhaps one occurrence per policy period per player? Or was the failure of the league or association to warn players of the potential danger or failure to provide adequate protection the single occurrence? For equipment manufacturers, is the occurrence the defective design or manufacture of the equipment? Or each player’s unique experience of the equipment allegedly contributing to their injury?

The number of occurrences can have significant impact on such key questions as the available policy limits, the applicability of aggregate limits, the number of self-insured retentions that may apply, and exhaustion of primary limits underlying excess coverage.

ALLOCATION

Because CTE claims have the potential to impact multiple policy periods, allocation of defense costs and indemnity among policy years may be a point of contention among insurers. The distinction between “all sums” (horizontal) and “pro rata” (vertical) allocation can impact insurers’ ability to
seek other insurers’ participation in the defense of their common insured.
The time period relevant to a CTE claim may span multiple years of an
athlete’s amateur, college and professional career. Moreover, gaps in
coverage due to insurer insolvencies, a policyholder’s risk management
strategy, and even lost policies, are not uncommon in latent injury claims,
which may make the question of how the loss should be spread among
policy years all the more significant.

OTHER CONDITIONS/EXCLUSIONS
Other common liability policy provisions that may be implicated are
the exclusion for expected or intended injury where plaintiffs allege that
the policyholder league/team/association created a hazard, failed to
disclose information regarding safety or misled players about safety issues
(although courts have been known to apply the exclusion sparingly),
exclusions pertaining to “participants” in sporting events, the “known loss”
exclusion (where the insured had knowledge of the alleged danger prior
to the inception of an insurer’s policy), and conceivably the employer’s
liability exclusion (which would depend on the relationship between the
player and the defendant team/league).

Policy conditions regarding notice of a loss or claim and “consent to settle”
provisions may also come into play. The coverage litigation arising from
the NFL lawsuits involves policies dating back fifty years – many of those
insurers could not have been provided “notice,” some presumably no
longer exist or were merged into/acquired by other companies, and can
those insurers demonstrate that they would have negotiated a better deal
than the NFL obtained?

REINSURANCE
For reinsurers, some of the questions that may arise with CTE claims – like
other latent injury claims – will involve allocation, what comprises a loss
occurrence, claim presentations that include multiple years of coverage
presented as a single loss occurrence in a single treaty year, which gives rise to
potential disputes regarding “follow the settlements” and “follow the fortunes.”

Reinsurers would be well advised to review books of business that include
schools and athletic associations. Notice is rarely a basis to contest coverage
by a reinsurer, but where “Notice of Loss” terms of a reinsurance contract
include the “seven deadly sins,” it bears noting that CTE claims often involve
fatality, as suicide is a common trend among sufferers of CTE, and the
diagnosis itself may otherwise fall within a mandatory notice category.

CONCLUSION
While settlements were reached in the NFL and NCAA suits filed to date, as
the science of CTE continues to be better understood there is the potential
for lawsuit filings in this area to increase before they decrease. Subrogation
and contribution claims could drag on for years. As often is the case,
long after the dust settles from the liability battles, insurers and reinsurers
will continue to hash out the issues to determine ultimate financial
responsibility. Established principles of insurance law will be asserted
and tested, and perhaps groundbreaking rulings will emerge that modify
or reshape concepts such as trigger and “occurrence.” As these claims
continue to emerge and develop, the (re)insurance industry would do well
to prepare itself for the long haul.

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One annual membership fee covers ALL members of your organization, including subsidiaries
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If you are not already a member, join us today!
The ORSA (Own Risk Solvency Assessment) Model Act was adopted by the NAIC following the 2008 Financial Crisis. The Model Act provides a framework for insurance regulators to assess the holding company’s financial condition. An ORSA report requires insurers to analyze all reasonably foreseeable and relevant material risk (i.e., underwriting, credit, market, operational, liquidity, etc.) that could impact an insurer’s ability to meet its policyholder obligations.

The ORSA Guidance Manual provides information for insurers on performing its ORSA and documenting risk policies and procedures. ORSA is not a one-off exercise, but rather a continuously evolving component of an insurer’s Enterprise Risk Management (ERM) framework. The ORSA report has two primary goals: 1) to foster an effective level of ERM at all insurers, through which each insurer identifies, assesses, monitors, prioritizes, and reports on its material and relevant risk identified by the insurer, using techniques that are appropriate to support risk and capital decisions and 2) to provide a group-level perspective on risk and capital, as a supplement to the existing legal entity view.

An ORSA report will require insurers to analyze all reasonably foreseeable risk.

### Abstract

The Financial Crisis of 2008 highlighted the importance of an insurer’s solvency. Although insurers’ companies were for the most part on the periphery of the crisis, state insurance regulators were concerned that any failure of a large insurance company or group of insurers could trigger a systematic risk to the overall market. A.M. Best added ERM survey questions in 2012 for insurers to determine their credit worthiness. Both the National Association of Insurance Commissioners (NAIC) and A.M. Best became deeply concerned with the risk management practices of insurance carriers that could lead to issues of solvency. Independently, both organizations have come up with their own standards to evaluate Enterprise Risk Management practices.

### About the Author

**Mrs. Narvaez** graduated from the University of Utah in Environmental Risk Management and received her MBA from Westminster College. She is a two time Spencer Education Foundation Graduate Scholar from Risk and Insurance Management Society. She started her career as a commercial insurance agent and then worked in the risk management departments of both Utah Transit Authority and Zions Bancorporation. She started ERM Strategies, LLC, an Enterprise Risk Management research and consulting firm, eight years ago. She is also an adjunct professor at Brigham Young University teaching Strategy to undergraduate students and also an adjunct professor at UCLA Extension teaching an online course called, “Designing and Implementing an Enterprise Risk Management Program.” She is a Senior Advisor at Hanover Stone Solutions involved with their Enterprise Risk Management and Strategy practice.
WHY A.M. BEST EVALUATES
ERM PROCESSES WITH INSURERS

A.M. Best has included ERM in its ratings evaluation of the insurance sector since 2012, but in its recently updated A.M. Best's Credit Rating Methodology ERM is formally recognized as one of the core building blocks, along with balance sheet strength, operating performance and business profile.

An insurer practicing sound risk management and executing its strategy effectively, will over the long term maintain a prudent level of capital and successfully fulfill objectives common to both A.M. Best and the company's board. A.M. Best also believes that developing and constantly refining an ERM framework is critical to maintain high ratings, remain competitive in today's dynamic environment, build sustainable earnings and capital accumulation for complex organizations like insurers who participate in the global reinsurance and retirement savings markets. This includes developing an internal economic capital model appropriate for its size and complexity.

A.M. Best has observed meaningful analytical improvements in the insurer sector in operational risk, model validation, cyber risk management and stress testing. Even as the insurer sector adopts new technologies, these efforts also introduce new risks. As a result, A.M. Best considers the process of aggregating these risks and looking at correlations through a robust ERM program as a key determinant of a company's long-term success.

The insurer sector is moving toward greater use of data and new ways to analyze behavior open up new horizons in risk management. In particular, the assessment and mitigation of cyber risk and CAT (catastrophic) risks pose myriad challenges for insurers. Both bring insurers' operational risks to the fore, and for those insurers underwriting cyber risks, a focus on coverage limits and aggregation risks from industries is critical. Insurtech and Fintech innovations and the growing use of third-party vendors for data analytics add layers of cyber and infrastructure risk, requiring that companies expand and enhance their ERM capabilities. A.M. Best views these risks as the next frontier for ERM and a top priority for insurers.

E. Tice Sirmans and Kathleen McCullough have written a very interesting article for the Journal of Insurance Regulation on the next frontier for ERM and a top priority for insurers. Both bring insurers' operational risks to the fore, and for those insurers underwriting cyber risks, a focus on coverage limits and aggregation risks from industries is critical. Insurtech and Fintech innovations and the growing use of third-party vendors for data analytics add layers of cyber and infrastructure risk, requiring that companies expand and enhance their ERM capabilities. A.M. Best views these risks as the next frontier for ERM and a top priority for insurers.

According to Section 1 of the ORSA Guideline Manual, an effective ERM framework should, at a minimum, incorporate the following key principles:

Risk Culture and Governance- Governance structure that clearly defines and articulates the roles, responsibilities, and accountabilities, and a risk culture that supports accountability in risk-based decision-making.

Risk Identification and Prioritization- Risk identification and prioritization process that is key to the organization, responsibility for this activity is clear, the risk management function is responsible for ensuring that the process is appropriate and functioning properly at all organizational levels.

Risk Appetite, Tolerance and Limits- A formal risk appetite statement and associated risk tolerance and limits are foundational elements of risk management for an insurer; understanding of the risk appetite statement ensures alignment with risk strategy by the board of directors.

Risk Management and Controls- Managing risk is an ongoing ERM activity, operating at many levels within the organization.

Risk Reporting and Communication- Provides key constituents with transparency into the risk management processes and facilitate active, informal decisions on risk-taking and management.

Section 1 of the ORSA Summary Report provides a high-level summary of the insurer's ERM framework, describing how the insurer identifies and categorizes relevant material risks and manages those risks as it executes its business strategy. It also describes risk-monitoring processes and methods, provides risk appetite statements, and explains the relationship between risk tolerances and the amount and quality of risk capital.

The ORSA Summary Report identifies assessment tools (feedback loops) used to monitor and respond to any modifications in the insurer's risk profile due to economic changes, operational changes or changes in business strategy. Finally, the ORSA Summary Report describes how the insurer incorporates new risk information in order to monitor and respond to changes in its risk profile.

Continued on page 22
A.M. BEST’S ERM SURVEY QUESTIONS

Since 2012, A.M. Best's ERM survey questions have provided a preliminary step in evaluating a company’s ERM framework. An insurer’s answers generate follow-up questions and lead to discussions, influencing views on management’s ability to execute their strategic plans and deliver on their financial projections.

These questions reflect efforts to benchmark each company’s ERM structure, increasingly becoming more probing and more influential to rating outcomes. As a result, insurers need to stay ahead of their peers and A.M. Best’s evolving ERM criteria. It is expected that the influence of ERM on overall rating decisions will increase as A.M. Best further develops its benchmarks across peer groups.

Exhibit 2: A.M. Best’s Enterprise Risk Management Assessment

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Notches</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very Strong</td>
<td>+1</td>
<td>The insurer’s ERM framework is sophisticated, time/stress-tested and embedded across the enterprise. Risk Management capabilities are superior and are suitable for the risk profile of the company.</td>
</tr>
<tr>
<td>Appropriate</td>
<td>0</td>
<td>The insurer’s ERM framework is well-developed and/or adequate given the size and complexity of its operations. Risk management capabilities are very good and are well aligned with the risk profile of the company.</td>
</tr>
<tr>
<td>Marginal</td>
<td>-1</td>
<td>The insurer’s ERM framework is developing; however, certain key elements of the framework are not yet in place or have proven inadequate given the complexity of its operations. Some risk management capabilities are not aligned with the risk profile of the company.</td>
</tr>
<tr>
<td>Weak</td>
<td>-2</td>
<td>The insurer’s ERM framework is emerging and management is exploring the development of formal risk protocols. Risk management capabilities are insufficient given the risk profile of the company.</td>
</tr>
<tr>
<td>Very Weak</td>
<td>-3 or -4</td>
<td>There is limited evidence of a formal ERM framework in place. Severe deficiencies in risk management capabilities relative to the risk profile of the company are evident.</td>
</tr>
</tbody>
</table>

The impact on ratings of this new ERM information will not be consistent for all insurers. It is not expected that A.M. Best will upgrade/downgrade companies solely based on their assessment of a company’s ERM program, but it could accelerate rating changes if a company’s performance and earnings/surplus volatility are linked to an ERM program that is deemed to be either strong or weak. Over time, A.M. Best could potentially relax its Best’s Capital Adequacy Ratio (BCAR) requirements for those insurers exhibiting lower volatility that is supported by a strong ERM program and vice versa.

Most companies’ ERM development is in its early stages and continuous improvement is expected even when advanced practices are evident. Therefore, A.M. Best will ask insurers to articulate their short- and long-term plans for ERM development and/or enhancements, and will expect management and the board to commit resources to achieve planned goals and objectives.

A.M. Best believes ERM encompasses three key areas:

- **Culture**: the establishment of an environment throughout an organization from the board level to senior management to business line management to the employee that embeds risk awareness and accountability in daily operations, its corporate DNA.

- **Identification and Management**: the ability to consistently identify key risks across the entire organization, and to establish uniform controls and procedures to effectively manage and mitigate the impact of those risks to the organization.

- **Measurement**: the use of sophisticated tools and data collection to quantify risks, including the impact of risk correlations within and among their five risk categories (credit, market, underwriting, operational and strategic), considering the impact of general economic conditions, industry-specific events and extreme events, and report these risk assessments to senior management on a regular basis.

Effective ERM starts at the top. In order to set the proper tone for sound risk management practices, A.M. Best believes clear directives for the
Since 2012, ... survey questions have provided a preliminary step in evaluating a company’s ERM framework. An insurer’s answers generate follow-up questions and lead to discussions, influencing views on management’s ability to execute their strategic plans.

insurer’s ERM program need to be established by the senior management team and the Board of Directors. The importance that senior management and the Board of Directors place on the ERM program will determine the extent to which the management of risk is integrated across the entire organization.

A strong risk management culture is only a starting point. The true effectiveness of any ERM framework depends on the ability to identify the key risks to the organization and to establish detailed controls and procedures to manage the potential impact of those risks to stakeholder value. ERM extends traditional risk management practices through a more comprehensive approach to the identification and management of risk.

ERM also incorporates the development of a consistent, corporate-wide set of guidelines that formalizes the broader risk process and allows for the sharing of information across business lines and functions.

In addition to identifying and managing individual risks, an extremely important component of ERM is the ability to consistently quantify those risks using sophisticated tools and data-collection procedures that ensure the data’s integrity. A key component of measurement is the ability to assess the impact of risk correlations across the enterprise. Some offsetting risks may be present that create natural hedges across business lines. Other interactions may be identified that compound aggregate risk. A.M. Best believes that companies with more complex risks need to demonstrate that risk models appropriately reflect such correlations.

If a company’s traditional risk management practices are the processes and controls that monitor and manage individual risks, then capital management provides a backstop to absorb losses that go beyond that. The primary sources of capital providing this resiliency are provided by retained earnings, debt and equity. Prudent capital management organizes each of these sources in an integrated way to provide adequate financial resources for daily operations and expected growth, while anticipating potential needs for additional capital based on the risk profile of the entity.

**STRATEGIC RISKS IN THE REINSURANCE MARKET**

A.M. Best’s Special Report, “Enterprise Risk Management: Behind the Scenes, But at the Fore,” notes that they rate most insurers with an ERM assessment of “appropriate.” However, when evaluating the U.S. property/casualty reinsurance sector they have a negative assessment. A.M. Best is concerned that property catastrophe pricing increasingly is being influenced more by the alternative capital market and less by the traditional reinsurance market. In addition, given the level of excess capacity in the overall reinsurance market, any near-term market improvement as a result of catastrophes may be relatively short-lived.

A.M. Best’s Briefing titled, “Market Segment Outlook: U.S. Property/Casualty Reinsurance” states that companies’ earnings going into third–quarter 2017 was depressed compared with historical levels. This was due to ongoing market challenges that suppressed underwriting performance together with lackluster investment returns, balance sheets remain solid.

A.M. Best estimates that the combined ratio and return on equity for the U.S. property/casualty reinsurance sector will continue to demonstrate lackluster performance beyond 2017. The pressure on rates and the uncertainty surrounding the level and sustainability of improvements in the U.S. reinsurance market environment are the primary drivers behind the negative outlook on the sector. Their view is that companies with robust balance sheets, diverse business portfolios, advanced distribution capabilities and broad geographic scope are better-positioned to withstand the pressures in a difficult operating environment and have greater ability to target profitable opportunities.

**CONCLUSION**

The primary goal of state insurance regulators is solvency assessment. The NAIC’s ORSA Model Act requires larger insurers to perform a yearly self-evaluation of risks and capital. An ORSA Summary Report identifies and evaluates all risks and exposures, explaining to board members (and regulators) how those risks and exposures are managed within its ERM program. Rating agencies have historically collected information on risks, exposures and capital management from insurers for the purpose of evaluating an insurer’s credit worthiness.

There are going to be challenges in preparing ORSA Summary Reports based on the size and complexity of an insurer’s operations and how well their ERM program captures this type of risk information. Those insurers that invest in strengthening their ERM program will improve long-term sustainability and be in an improved competitive position. A.M. Best believes that insurance companies engaged in sound risk management practices are typically less likely to fail because they’ve considered the unexpected and have contingency plans in place for both positive and negative events. ▲
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Founded in 1967, the IRUA today has approximately 30 Regular member companies engaged in the assumption, placement or purchase of property/casualty treaty reinsurance. This number is misleading as corporate membership benefits extend to all members of a Group, such as Fairfax or Munich Re. In 1993, the IRUA expanded its membership from solely reinsurance underwriters to include reinsurance intermediaries. In 2002, the IRUA expanded its membership further to include ceding company reinsurance departments. In April 2017, the membership criteria extended to include Individuals not employed by, or affiliated with, an organization otherwise eligible for Regular membership and it is anticipated that this will be of interest to consultants, attorneys, academics, accountants, arbitrators and other professionals. Also, for smaller entities, both risk-bearing and intermediaries, a 50% discount of Regular membership is available. While all IRUA members primarily operate in the U.S. reinsurance market, we now have members from the London, Europe and Bermuda markets as well.

The IRUA is a not-for-profit 501c(6) corporation, organized for the purposes of reinsurance education, networking and research and the dissemination of information relevant to the reinsurance industry. The IRUA does not speak on behalf of its membership on industry issues nor does it engage in lobbying.

Each Spring the IRUA holds an Annual Conference for its members during which the Annual Meeting of Members takes place and where officers and directors in nomination are voted in. In addition, a variety of seminars and workshops covering claims and/or underwriting and/or career enhancing topics are held throughout the year and are open to members and non-members. Every two years the unique Next Generation Reinsurance Leadership seminar is held in New York City. Experienced reinsurance and financial industry professionals shared their life and career experiences with an enthusiastic group of younger professionals who will be the future leaders of the reinsurance industry.

Commentary or Corrections?

The IRUA welcomes your comments and suggestions, as well as information regarding errors or omissions that call for correction. Please send your electronic message to mcs@irua.org.
LUNCH & LEARN
SEPTEMBER 12, 2018
IN MIDTOWN, NYC

The Opioid Epidemic – This lunchtime program will describe the rapidly growing opioid crisis and the legal developments relating to insurance/reinsurance issues on CGL, Workers Comp, Med Mal, and Products coverages. In addition, there are aggregation and allocation issues to be considered as the claims bill mushrooms.
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**Vision**

To facilitate a vibrant forum that encourages professional and personal development of member company personnel through educational excellence, the exchange of knowledge among industry constituents within the insurance and reinsurance marketplace and recognition for academic excellence for the next generation of reinsurance professionals. We accomplish this vision through focused educational offerings, a robust Scholars program, the publication of the *Journal of Reinsurance*, and an Annual Conference.

**Mission Statement**

The IRUA is a not-for-profit corporation, organized for the purpose of providing high-quality insurance and reinsurance education, meaningful networking opportunities, and the dissemination of topical publications and information relevant to the reinsurance industry.
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