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# Risk Management

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# Global Best Practices in ERM for Insurers and Reinsurers Webcast

*Tsana Nobles*

In January 2008, the International Network of Actuarial Risk Managers (INARM), which is an international ad hoc group formed by the Joint Risk Management Section of the North American actuarial profession, hosted the webcast "Global Best Practices in ERM for Insurers and Reinsurers." The purpose of this webcast was "… to promote awareness of a global actuarial community by involving actuaries globally in one event, allowing people to share emerging and new risk management practices across different geographical regions ..." The program consisted of two tracks of sessions: one pre-recorded and one live.

The pre-recorded sessions included a basic introduction to ERM and covered:

- Emerging Risks
- Embedding ERM in the DNA of an Enterprise (Introduction)
- Economic Capital
- Risk Appetite

The live sessions took place on January 16 and covered:

- Stakeholder Views: Regulators, Rating Agencies, and Investors
- Embedding ERM in the DNA of an Enterprise
- Economic Capital: A Passing Fad or a Brave New World?
- Active Risk Controls

The webcast participation was fantastic. There were 530 registratrants from 47 countries resulting in approximately 1600 viewers. The live sessions ran over three time zones: Asia/Pacific, Europe and Americas. Presenters in each time zone were from the region and the presentation material had specific application to that region.

The SOA, the Joint Risk Management Section, the Actuarial Profession (U.K.), and the Institute of Actuaries of Australia were all underwriters of the webcast. Milliman and Standard & Poor's were commercial sponsors, and their sponsorship funds covered many of the fixed expenses so the webcast was offered at a nominal fee.

Viewers of the webcast volunteered to summarize some of the pre-recorded and live sessions to offer insight into the topics and specific material covered. Those summaries are listed below.

## Emerging Risks Pre-recorded Session

Summarized by Clifford Angstman, FSA
AIG Life Insurance Company

This session included a large number of presentations on different aspects of analyzing and responding to emerging risks. Tony Campbell provided moderation and introductory material.

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The presentations are summarized below.

***Nassim Taleb and Black Swan***

Nassim Taleb discussed the concept of robustness of financial institutions to variations or modeling errors in tail-distributions for unusual but infrequent events. He also contrasted the differences in impact for those companies working in an "Extremistan" environment, as opposed to those whose risk work is more in the "Mediocrastan" realm.

***Dr. Achim Regenauer (Munich) and Obesity.***

Dr. Regenauer used graphical techniques to provide a fascinating description of the increase in obesity rates (BMI >30) in the U.S. and Europe from 1991 to 2005. He followed this with similar graphs on the development of diabetes rates. After discussing the impact of diabetes on health, he concluded that increased obesity leads to increased diabetes about 10-20 years later, followed by increasing heart disease incidence and with potential higher mortality.

***Dr. Peter Hoeppe (Munich Re) and Geographical Risk.***

Dr. Hoeppe reviewed evidence that rising sea temperatures have led to the doubling of the risk from heat waves, and increases of 50 percent in the intensity of hurricanes.

***Manuela Zweimuller (Munich Re) and Environmental Scanning***

Manuela Zweimuller looked for major trends in the global environment to develop an early warning system for risks as they develop. She provided an asbestos related example to explain the need for this process. The first asbestos related death occurred in 1900, and it took the next 100 years for society to fully develop its view of this risk issue, including how to prevent exposure, who was responsible for its impact, and how to compensate and treat those that were exposed. Thinking through this example, one can see how it is important to consider a risk in light of all of the other societal developments that will influence its resolution. Understanding the correlations and connections with other key risk drivers is important to a thorough analysis of emerging risks.

Zweimuller mentioned a number of current trends, including improving longevity and obesity, globalization, communication changes, climate change, complexity, and regulatory initiatives.

***Robert W. Wilson (Sun Life Financial) and Scenario Analysis.***

Robert W. Wilson discussed the use of scenario analysis at Sun Life Financial. This process was used extensively by Royal Dutch/Shell (see also "The Art of the Long View," by Peter Schwartz.) for the strategic management of risks. For those interested in utilizing this "war game" type of approach to improve management response to risks, this session provided a number of tips.

Jeff Smith (IAG) went through a similar scenario analysis example related to the Avian Flu. He described the organizational process for dealing with risk events, and how scenario analysis has allowed his organization to identify potential problems and improve their response plans. The Avian Flu scenario brings out issues of staffing, changes in business distribution, dealing with the media, and making operational changes in a period of stress.

***Camilio Salazar (Milliman) and Disaster Recovery.***

Camilio Salazar provided his real life experience in recovering from Hurricane Katrina, mostly from an operations point of view. It is very interesting to get the prospective of someone who has lived through such a significant event. He discussed many important issues in a recovery plan including dealing with the potential loss of intellectual and human capital as employees may look to relocate elsewhere. He also discussed the significant communication issues they faced with a loss of phone, mail and e-mail for a time. This could have resulted in the loss of suppliers and producers. To ensure that these relationships remained intact, many personal visits were made with producers and suppliers to demonstrate their commitment to the business. His insights and practical experience on recovering from a disaster situation are useful to risk management professionals.

***Mike Metzger (Genworth) and the Event Risk Management Process***

Mike Metzger discussed the use of a formal process to manage and resolve risk incidents that starts with indentifying and assessing the risk and ends with a post event debriefing stage. He also explained the management structure used to develop a coordinated response to risk events. He discussed the value of having an Emergency Preparedness Guide provided to every employee so that they understand their role in a crisis.

***Dave Ingram (S&P) and Rating Agency Consideration of Emerging Risks***

Dave Ingram provided a rating agency view of company's ability to manage emerging risks, and how this evaluation is used in the rating process.

## Embedding ERM in the DNA of an Enterprise (Intro)Pre-recorded Session

Summarized by Max J. Rudolph,
FSA, CFA, CERA
Rudolph Financial Consulting, LLC
Presenters: Samuel Sender and Steve D'Arcy, PhD, FCAS, MAAA

This session, lasting just over an hour, provided background on Enterprise Risk Management (ERM) and how we got to today's best practices. The presenters warned against the practice of solely using ERM to meet an external stakeholder's requirements and suggested that best practice occurs when ERM is integrated into strategic planning and the firm moves toward and better understands their optimal result.

The driver of ERM has been the regulator in Europe, while in the United States, rating agencies have taken the lead. The speakers warn against a false sense of security that sophisticated models can provide, suggesting that the firm's culture is the true long-term competitive advantage.

Enterprise risk management has gone by a variety of names. Among these are: enterprise wide, holistic, integrated, strategic, and global risk management.

The person acting as Chief Risk Officer (CRO) of the firm should have direct access to the Board of Directors or risk being buried in bureaucracy.

There are many metrics being used by ERM practitioners. The common feature of the best ones is that they look at a distribution of results and focus on sections of it, often the tail. No one metric provides all the information, so it is important to consider several.

Reports should be tailored to the audience, with more graphics at the board level and more detail at lower levels. The owner of a risk, whose bonus depends on the result, should not also be the person measuring the risk.

Best practice ERM considers the major risks through a prioritization process, involves the board of directors, and is strategic in that it looks to optimize the risk/return relationship by making decisions that improve the firm's position. This will give a company a leg up on its competitors as future events unfold.

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## Economic Capital: Life/Non-Life Prerecorded Session

Summarized by Tsana W. Nobles, FSA, MAAA
Quantitative Analyst, Insurance Asset Management
Dwight Asset Management Co.
Presenters: John F. Brierley, FSA, FCIA, Gary Finkelstein, FIA, and Steve Lowe, FCAS, MAAA

These two sessions offered high level information on the components of economic capital with some specific numerical examples.

John Brierley defined economic capital and stressed that all risks should be included in the calculation, not just those stressed by regulators. He stated that economic capital is used for pricing, is a fair and consistent way to allocate capital, and is a method to compare profit margins for dissimilar lines of business on a level playing field. He contends that the key risks captured in economic capital calculations are credit, operational, business, interest rate, fixed asset, goodwill, and insurance. John highlighted several challenges of calculating economic capital such as incorporating multi-year guarantees into a one-year time horizon as well as appropriately reflecting partial correlations and diversification.

Gary Finkelstein stressed that economic capital can be viewed from two different perspectives: the capital required to meet risk as well as the capital available. Capital management is "the marrying of these two" perspectives. Risk-adjusted performance measures were introduced. Hepresented specific numerical examples that highlight the difficulty in setting an appropriate correlation matrix and capturing diversification benefits. Gary cautioned that "correlations in the tail may not be the same as correlations at the mean."

Steve Lowe pointed out that there is no right or wrong approach to building an economic capital model and that the chosen approach should reflect the company and management's objectives. He stated that the approach will address six key decisions: the risk horizon, the definition of capital, the measure of security risk, the risks included, the quantification methodology, and the aggregation method. Currently there are two divergent views on the appropriate risk horizon for economic capital, one-year or run-off. Steve believes that all approaches to economic capital modeling present a spectrum of systems requirements and sophistication and feels that any criteria should be used in the selection of an appropriate model for general insurance risk such as data requirements, ease of implementation, type of risk measured, and whether it is amenable to a one-year risk horizon. Steve described in detail several well-known methods of modeling. Steve concluded with the idea that it is worth building an internal model in order to earn rating agency credit and to compete effectively. He added that eventually the economic capital modeling results will act as a springboard to economic performance measurement.

## Stakeholder Views: Regulators, Rating Agencies, Sell-Side Analysts/Investors (Americas Focus) Live Session

Summarized by Ashley Goorachurn, FSA, FCIA
Director, Risk Management
AEGON Institutional Markets
Presenters: Max J. Rudolph, FSA, CFA, CERA, David Ingram, FSA, CERA, and David Sandberg, FSA, CERA.

In this session, presenters discussed Enterprise Risk Management (ERM) from the perspective of investors and sell-side analysts (Max Rudolph), rating agencies (David Ingram), and regulators (David Sandberg).

Max Rudolph discussed how investors (specifically private investors) can look to the areas of compliance, culture, knowledge and value added, to better understand a company's strategy and risks.

Compliance can add value to a company when structured properly, but an investor must be skeptical of companies where compliance is the focus of their ERM framework.

Investors should look for a culture that supports proactive risk management at all levels of the organization. Also look for alignment between risk management and internal programs (incentive comp, etc.)

Investors should examine whether companies are accepting risk where they have a competitive advantage and avoiding or mitigating risk where they do not. Investors will also want to determine whether a company is accurately communicating its risk profile to stakeholders, and whether senior management understands the risks the company is taking.

Next David Ingram covered ERM from a rating agency perspective with his review of the ERM evaluation process at S&P.

In 2005, S&P created a framework to systematically evaluate firms' ERM practices. This ERM evaluation has become the eighth category of S&P's full ratings review process (the other seven are capital adequacy, management strategy, investments, financial flexibility, earnings, liquidity and market position). The weighting on the ERM evaluation varies by company and depends on the insurer's risk profile and its capacity to absorb losses.

S&P's ERM evaluation considers a company's risk control processes, emerging risk management, risk and economic capital models, risk management culture and strategic risk management. While the first four categories largely focus on limiting losses, the assessment of strategic risk management focuses on the potential upside. An effective ERM framework will not only measure risk capital but also utilize this information to optimize the company's risk adjusted returns. S&P looks at whether a company is incorporating risk adjusted returns into their corporate strategic decision making processes such as product design, risk budgeting etc.

Finally David Sandberg discussed how ERM can add value for regulators.

Companies have adopted ERM because they believe it adds shareholder value. ERM can also add value to regulators by transforming the focus of the regulatory review process from verifying calculations and keeping of rules to ensuring that the reporting process enhances the learning of the regulator and the industry. To accomplish this, changes to the regulatory functions and processes must be made which enhance the effectiveness and comfort of the regulatory function. Exactly what these changes should be have not yet been clearly articulated.

Regulators (and industry) don't need complex models to understand every risk. While sophisticated risks typically require sophisticated risk management practices, some risks are better handled through other processes.

## Economic Capital - Passing Fad or Brave New World (Americas)

Summarized by Hubert Mueller, FSA, CERA
Principle
Towers Perrin
Presenters: Mike Angelina, FCAS, Ellen Cooper, FSA, CFA, Guogiang Li, CFA, Jeff Mohrenweiser, FSA.
Moderator: Steve Lowe, FCAS

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The presenters discussed different perspectives on economic capital (EC).

Jeff Mohrenweiser (Fitch Ratings) provided a rating agency perspective, by illustrating Fitch's Global EC Model, Prism, and its unique attributes. He also discussed some of the challenges for a rating agency in assessing an insurer's capital adequacy from the outside.

Ellen Cooper (Aegon) discussed the use of EC for market-consistent pricing by illustrating a Term product example. In particular, EC provides a new tool to assess how new products add value on a market-consistent basis, using a stress testing technique consistent with the European Solvency II regulation. She also discussed the link from EC to a market-consistent framework.

Guo Li (AIG) discussed the governance aspects of EC, and its global applications and challenges for insurers and reinsurers. In his view, EC helps drive better decision-making by providing a tool for the various applications. He then described AIG's process for ERM and EC in greater detail.

Finally, Mike Angelina (Endurance) focused on the use of EC for optimal capital management and better management of earnings volatility. He mentioned several key principles for ERM and EC: optimal management of capital, eliminating risks that threaten solvency, managing earnings volatility, shaping the business by only taking risks that can be quantified, and creating behaviors that reinforce an ERM culture as the key objectives for ERM and the implementation of Economic Value. He also discussed several implementation issues and challenges for EC.

## European Focus Live Sessions

Summarized by Jules Constantinou, ASA, FFA
Head of Marketing
Gen Re Life Health

The Stakeholder's views session was moderated by Nikos Katrakis:

- Paul Brenchley (FSA) specified ERM as a holistic process resulting in a framework responsive to changes to the firms' risk profile, regularly incorporating new risks and information. Sophistication should depend on the size and complexity of the enterprise.
- Keith Bevan (S&P) explained that ERM is a key part of the rating process. S&P has four ERM classifications for insurers, Excellent, Strong, Adequate and Weak. The evaluation includes risk controls, emerging risks management and models of risk and economic capital.
- William Allen (Bear Investments) was critical of the current risk frameworks, in particular citing exposure to recent events and the inability of firms to "foresee" these risks through their ERM platforms.

The Embedding ERM in the DNA of the Enterprise session was moderated by Lain Brown:

- Alister Esam (eShare Limited) outlined how important a role IT plays in the management of risk information;
- Roger Dix (HBOS) and David Dullaway (Tillinghast) jointly focused on risk-based pricing and the potential benefits of diversifying risk across different business units.
- Lukas Ziewer (Oliver Wyman) concluded by covering the need to having a clear and robust process in place to manage the sheer volume of risk information that enterprises are faced with.

The session on Economic Capital was moderated by Alessa Quane:

- Bernhard Bergman (Munich Re) questioned the relevance of economic capital to firms today.
- Colin Wilson (Barrie & Hibbert) discussed the challenges of using economic scenario generators within the modelling.
- Steven Vanduffel (X-Act Consulting) continued the discussion on capital modelling, focusing on current practices and why they perhaps should not be considered best practices.
- To end, Eric Paire and Eddy Vanbeneden (Guy Carpenter) spoke on the management of the capital through the use of reinsurance and allocation to various parts of the business.

The final session on Risk Control Hot Topics was moderated by Steve Nuttall:

Neil Allan (University of Bath, who dialed in from Brisbane) and Neil Cantle (Milliman) argued that a structured approach to strategic risk can help to avoid missing the big risks and identify hidden opportunities.

Nick Silver (Parhelion) discussed the challenge faced by insurers on managing climate change risk, including a summary of recent research amongst the profession on views on the impact of climate change to our current business and professional models. ✦

# INARM on the Web

*David Ingram*

## *WHAT IS INARM???*

You may have heard about it, but here is what the group is really about.

INARM is the International Network of Actuarial Risk Managers. It is a very informal group of folks who are interested in learning and sharing Enterprise Risk Management (ERM) practices across borders to enhance the actuarial ERM practice in all parts of the globe.

INARM is mainly a virtual group. We communicate via several modes and initiatives:

*1. INARM Listserv*

The SOA has provided an email listserv facility to get us started. This has been used by the over 200 listserv members to share articles, questions, answers, opinions, and program information. There are now about 280 people who get irregular and mostly topical emails from the listserv participants. Those emails have ranged from five to 15 per month. Topics ranging from subprime, to model risk, to historical risk management failures. Open to all. Sign up at link below:

http://www.soa.org/news-and-publications/listservs/list-public-listservs.aspx

*2. INARM Blog*

As an alternative to the Listserv, an INARM Blog has been created. Discussions of Sub Prime, the 2008 ERM Symposium, Fair Value, Limitations to Modeling, and Mortgage Lending in Asia have been copied there from the Listserv emails in March and April 2008. You can add your comments there without joining anything. http://riskviews.wordpress.com/

*3. INARM Emerging Risks*

In January 2008, INARM helped to create the Global ERM Best Practices for Insurers and Reinsurers Webinar. This program ran for 16 hours and drew an audience of 1,600 people from 47 countries. One of the programs was on the topic of Emerging Risks. Materials from that program plus new sources on the topic are now available in an open platform that allows users to add more materials as they see fit. This is accomplished with a Google Group called INARM Emerging Risks. Anyone can make comments. To add significant postings, you need to join the group. Instructions are there on the website. http://groups.google.com/group/inarm-emerging-risks/web

*4. INARM LinkedIn Group*

While the listserv is not anonymous, it does not provide for members to easily learn each other's identities. LinkedIn is a professional networking Web site that allows the formation of special groups. We have formed an INARM group. As of this writing, the INARM group on LinkedIn has over 80 members from more than 15 countries. To use this facility, you must join LinkedIn (please note that this should not constitute marketing for or against LinkedIn). There is a level of service on LinkedIn that is free and that you may find to be sufficient to make connections with other INARM members if you are interested in that. To join the INARM group http://www.linkedin.com/e/gis/83735/3270834C5E91

*5. Other INARM citings on the Web. For more information about INARM, look at*

http://www.actuaries.asn.au/NR/rdonlyres/1C5D0157-1B4E-4059-B75E-32F751723D99/2700/INARMKit.pdf

http://www.soa.org/professional-interests/joint-risk-management/jrm-inarm.aspx

If INARM sounds of interest to you, please join us in the discussions!