

# **CERA- The New Actuarial Opportunity:**

SOA/CAS/CIA/IAA Joint Day  
SOA/CAS/CIA Spring Meeting, June 2008  
Session 90

Bob Wolf, Stuart Klugman, Kathy Wong



SOCIETY OF ACTUARIES

# **CERA- The New Actuarial Opportunity: Introduction**

SOA Spring Meeting, June 2008  
Session 90  
Robert Wolf



SOCIETY OF ACTUARIES

## Definition of ERM

*“ERM is the discipline by which an organization in any industry assesses, controls, exploits, finances and monitors risks from all sources for the purpose of increasing the organization’s short- and long-term value to its stakeholders”*

(Casualty Actuarial Society)

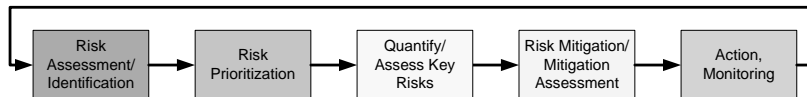
Adopted by the Society of Actuaries as well



SOCIETY OF ACTUARIES

## Enterprise Risk Management: COSO Framework

- More Comprehensive than the COSO framework
- COSO’s focus is an attempt to link operational, financial and strategic decision-making within the organization (i.e. Good Stuff)

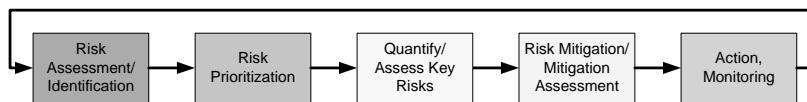


SOCIETY OF ACTUARIES

## Enterprise Risk Management: COSO Framework



- Increased Transparency
- Financial Disclosure
- Checks and Balances on Regulatory and Other Compliance Considerations
- But is only limited to Diagnostics and Procedures



SOCIETY OF ACTUARIES

## Enterprise Risk Management



- **Definition**
- Key elements:
  - Dual nature of risk
  - Value creation
- Should really be Called “Enterprise Risk and Return Management”



SOCIETY OF ACTUARIES

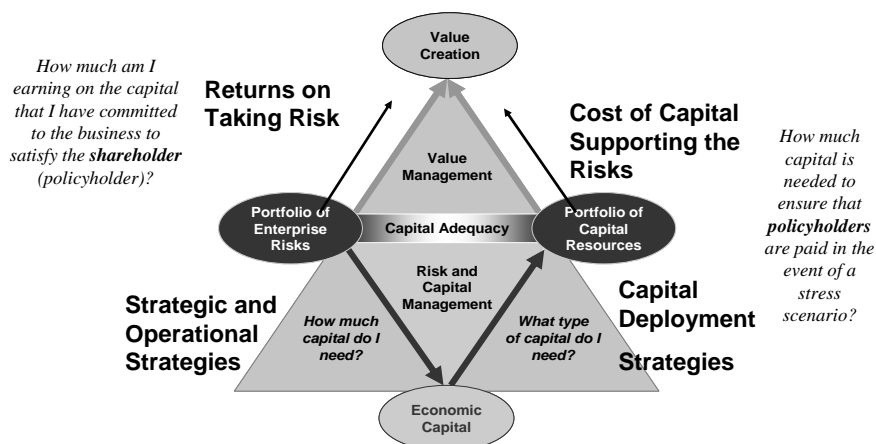
## Why does ERM Add Value ?

- Optimizing the characteristics and tools involving of the laws of probability and statistics
  - Diversification
  - Correlation



SOCIETY OF ACTUARIES

## Measuring Strategy and their Inherent Costs Marginal Value Creation (Prakash Shimpi and Steve Lowe, Tillinghast)



SOCIETY OF ACTUARIES

## Evolving Skills- Then and Now

- **Rates and Costs**
  - Then: One or Two Dimensional Classification Rating (causal relationships)
  - Now: Predictive Modeling "Indirect Causal but Correlated" Rating
- **Reserves**
  - Then: Reasonable Point Estimate
  - Now : Reserve Range and Risk of Material Deviation and principles based
- **Mega-Risks**
  - Then: Look at 40 year history of large events
  - Now: Catastrophe Modeling
- **Reinsurance**
  - Then: Focused on results after reinsurance
  - Now: Gross and Net of Reinsurance
  - Risk Transfer Testing
  - Efficiency of Risk Transfer
- **Capital**
  - Then: Nothing
  - Now: balance the holistic view of risk and returns on capital with marginal economic capital
  - Balance with capital costs
  - Balance with costs of releasing contingent capital (reinsurance and/or other hedging strategies)



SOCIETY OF ACTUARIES

## Evolving Skills – Then and Now

- **Risk Metrics**
  - Then: Probability of Ruin, NAIC RBC
  - Now: Edge of Cliff before Domino Effect dooms Company
- **Unforeseen Risks**
  - Old unintended Coverages
  - Then- asbestos, environmental
  - Now- unimaginable events
    - Terrorism
    - Climate Change
- **ALM**
  - Then: Immunize Cash Flows
  - Now: Longer is Better
    - Returns compensate for additional risk
- **Reinsurance**
  - Then: Expected Benefits
  - Now: Bifurcation of risk transfer and borrowing
- **Allocating Capital**
  - Then : needed capital by rules of thumb, allocate arbitrarily by accounting numbers
  - Now: Economic Capital based on holistic view, allocate as a marginal asset share



SOCIETY OF ACTUARIES

## **SOA Marketing Initiatives**

- Actuaries in Action Series
- Image of the Actuary Campaign
- Active Marketing of the Credential in Trade Presses
- Marketing Study of the Value of Our Expertise in ERM Space



SOCIETY OF ACTUARIES

## **CERA- The new actuarial opportunity: Earning the designation**

SOA Spring Meeting, June 2008

Session 90

Stuart Klugman



SOCIETY OF ACTUARIES

## **New ASA-level ERM Credential**

- Approved by SOA Board in November 2005.
  - Helps members to exploit ERM opportunities
  - Differentiates in marketplace from “traditional” ASA
  - Uses exams and modules within the new structure
- Name approved in March 2007
  - Chartered Enterprise Risk Analyst (CERA)



SOCIETY OF ACTUARIES

## **CERA - Key Points**

- CERAs:
  - Are to be considered actuaries
  - Will complete an alternative ASA pathway and will receive their ASA designation at the same time as their CERA designation



SOCIETY OF ACTUARIES

## **CERA - Marketplace**

- CERAs will be employed to a greater extent than traditional ASAs in banking and broader financial services
- Marketing efforts will be directed at publicizing the unique skill set of CERAs



SOCIETY OF ACTUARIES

## **CERA - Requirements**

- For individuals new to the field:
  - Exam P
  - Exam FM (2007 and later)
  - VEE Economics.
  - Exam MFE (2007 and later)
  - Exam C (2007 and later)
  - Advanced Finance/ERM Exam
  - Operational Risk Module
  - Associate Professionalism Course (APC)

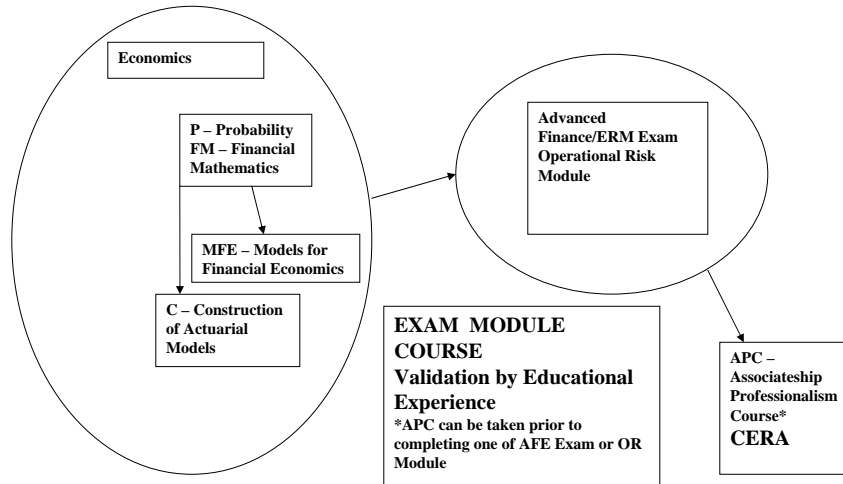


SOCIETY OF ACTUARIES



## CERA pathway

**Actuaries**  
Risk Is Opportunity.™



SOCIETY OF ACTUARIES

## VEE Economics

- Grades of B or better in approved introductory micro and macro economics

**Actuaries**  
Risk Is Opportunity.™



SOCIETY OF ACTUARIES

## **Exam P - Probability**

- Mathematical probability
- Distributions, univariate and multivariate
- Moments, moment generating functions, transformations



SOCIETY OF ACTUARIES

## **Exam FM – Financial Mathematics**

- Traditional material
  - Present and future value, rates of return
  - Annuities, bonds, and loans
- Introduction to derivatives
  - Understanding derivative securities
  - Forward contracts, options, and others



SOCIETY OF ACTUARIES

## **Exam MFE – Models for Financial Economics**

- More on derivatives
  - Binomial pricing models
  - Black-Scholes formula
  - Option Greeks and hedging
- Models for interest rates
- Ito's Lemma



SOCIETY OF ACTUARIES

## **Exam C – Construction of models**

- More on probability models
- Applying deductibles/limits/coinsurance
- Collective risk model
- Estimating parameters
- Model selection
- Risk measures
- Credibility



SOCIETY OF ACTUARIES

## **Exam AFE – Advanced Finance/ERM**

- Identification of risks faced by an enterprise including financial, insurance, operational, and strategic
- Measurement of value, including analysis of financial statements, embedded value, economic capital
- Application of risk metrics to quantify risk, including risk aggregation and correlation



SOCIETY OF ACTUARIES

## **Exam AFE – Advanced Finance/ERM**

- Risk management through transfer, internal hedge, and use of financial instruments
- Management of specific risks including ALM, credit, liquidity, and product risk
- Understand the ERM framework including external and internal constraints, and be able to articulate risk objectives, profiles, filters, and controls
- Understand how ERM contributes to shareholder value and measuring effectiveness



SOCIETY OF ACTUARIES

## Operational Risk module

- Sources and types of operational risk
- Alternative definitions of operational risk
- Describe an operational risk management framework
- Describe the specific characteristics of operational risk, how they differ from other risks
- Describe and apply quantitative and qualitative methods for assessing operational risk
- Describe ways to mitigate operational risks
- Describe ways to transfer operational risk



SOCIETY OF ACTUARIES

## CERA - For Current Members

- If an FSA via the ERM track, qualified for CERA
- For FSAs who practice in the ERM area there is a pathway to CERA that involves a seminar experience. Applications due July 1, 2008.

**Information is available at**  
**[www.ceranalyst.org](http://www.ceranalyst.org)**



SOCIETY OF ACTUARIES

## **CERA – The new actuarial opportunity: Global developments**

SOA Spring Meeting, June 2008

Session 90

Kathy Wong



SOCIETY OF ACTUARIES

## **CERA for Current Members**

- Designated Thought Leaders
- Experienced Practitioner Pathway
- AFE exam for FSAs
- Finance/ERM FSA track for ASAs



SOCIETY OF ACTUARIES

## Thought Leaders

- Awarded the designation without any further requirements
- Limited number – about 35
- Based on their visibility, contributions to advancing ERM as a discipline for actuaries, high-level industry positions



SOCIETY OF ACTUARIES

## Experienced Practitioners

- FSA/ASA with 3+ years of senior level, substantive experience
  - Key contributor to risk committee
  - Senior level position in ERM
  - Advancing ERM in the actuarial profession
  - Published research in ERM
- Application process – KMSAT review team
- Attendance at 2-day seminar with participation in group project



SOCIETY OF ACTUARIES

## **FSAs / ASAs**

- Current FSAs can attain the CERA by completing the Advanced Finance/ERM examination.
  - AFE is offered each May exam sitting; for 2008 an additional October exam sitting is being offered.
- Current ASAs who take the Finance/ERM specialty track will earn the CERA at the point they have completed the AFE exam and the Operational Risk module.



SOCIETY OF ACTUARIES

## **A Global ERM Credential for Actuaries?**

- Background
  - Raised in IAA Enterprise and Financial Risks Committee (Nov 2006)
  - Discussed in Presidents Forum (April and October 2007)
    - ♦ Commitment to support the development of this project by 8 associations
    - ♦ Strong interest by several others



SOCIETY OF ACTUARIES



## **The Global Risk Management Environment**

- Financial and Enterprise RM is a rapidly growing field of activity for actuaries and other risk professionals.
  - Most large financial institutions have a CRO and a team devoted to ERM.
  - Two associations (GARP and PRMIA) have been created to organize risk professionals and certify them with credentials (FRM, PRM).
    - ♦ They have members world-wide and are seen as global players.



SOCIETY OF ACTUARIES

## **The Global Risk Management Environment**

- Established associations (e.g. CFA Institute) are also seen as providing professionals with expertise in ERM.
- The actuarial profession has been almost invisible to the buyers of FRM and ERM services (although numerous individual actuaries have become prominent).



SOCIETY OF ACTUARIES

## What Is a “Global” Credential?

- A single credential with a corresponding set of letters (e.g. XRX<sup>FR7</sup>) that is widely recognized by buyers of ERM services and widely accessible by persons who want to acquire the designation.
  - For example, a person who is an FIAA could also be an XRX. It has no ‘national’ connotations.
  - This is in fundamental contrast to how we now credential actuaries.
- Questions:
  - Do global credentials have an advantage over local credentials?
  - If so, how can the actuarial profession have a global RM presence **without** undermining its existing strengths?



SOCIETY OF ACTUARIES

## The Working Model

- Develop a credential around a core body of risk management knowledge.
  - With appropriate standards for achievement of the designation.
- A group of actuarial organizations act as “sponsors” of the designation.
- Allow each sponsor to determine how the standards are met; e.g. examinations, courses of study.
- Mutual recognition, subject to verification.

FR5



SOCIETY OF ACTUARIES

## Slide 35

---

**FR7** Not very important, but this is used in the draft Treaty.  
Fred Rowley, 6/3/2008

## Slide 36

---

**FR5** That is, co-sponsors can verify whether or not standards are met.  
Fred Rowley, 6/3/2008

## What has happened since Oct 2007?

- 8 associations signed a statement of intent to develop the designation
- 2 working groups formed
  - Recognition – Chair: Fred Rowley, Australia
  - Syllabus – Chair: Harry Panjer, Canada
- 1 representative from each of the associations on each working group



SOCIETY OF ACTUARIES

## Initial Signatories of the Statement of Intent

- Actuarial Society of South Africa
- Association of Mexican Actuaries
- Canadian Institute of Actuaries
- \* Casualty Actuarial Society
- Faculty of Actuaries
- Institute of Actuaries
- Institute of Actuaries of Australia
- \* Society of Actuaries

\*Active  
Participant  
Subject to Board  
Approval



SOCIETY OF ACTUARIES

## Draft Syllabus

- The draft syllabus has been crafted in terms for “overall objectives” and “learning objectives”
  - What should persons receiving the credential be able to do?
  - There is not yet any reference to specific text material
- The syllabus content that is described is in addition to the current IAA education syllabus
  - All credential holders will also meet IAA requirements



SOCIETY OF ACTUARIES

## Report to IAA

- Presented to June 2008 Presidents' Forum last week FR1
- Reaction was very positive to the proposal
  - Initial supporting associations to determine if they wish to proceed – all agreed to do so
  - Obtain support from more associations – at least one specifically asked to join the group (France) and others expressed interest
- The IAA added the development of a global ERM designation as a strategic priority



SOCIETY OF ACTUARIES

## Slide 40

---

**FR1** This will be after June meetings, presumably.  
Fred Rowley, 6/3/2008

## Next Steps

FR2

- Develop a more detailed operational plan
- Obtain support from more associations
- Complete Mutual Recognition Treaty
- Further develop Syllabus



SOCIETY OF ACTUARIES

## Relationship with CERA

- SOA has strongly marketed CERA and will continue to do so
- SOA has participated in the global ERM syllabus and recognition treaty working groups and will continue to do so
- If global credential proceeds, expectation is that CERA would meet the global requirements and CERAs would become XRxs as well
- Global credential would not supplant CERA



SOCIETY OF ACTUARIES

## Slide 41

---

**FR2** This will be after June meetings, presumably.  
Fred Rowley, 6/3/2008



.....Thank You.....

**Actuaries**  
Risk Is Opportunity.™

“....We don’t do things because they are easy.  
We do them because they are hard.”

....John F. Kennedy



SOCIETY OF ACTUARIES