



CARIBBEAN ACTUARIAL ASSOCIATION



Accredited as a Full Member
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2013 Conference “Risk, Recovery & Real Growth”

23rd Annual CAA Conference

Secrets Wild Orchid Montego Bay,
Jamaica.

4th to 6th December 2013



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Enterprise Risk Management and the Actuarial Profession

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December 6, 2013

Actuarial definition of ERM

“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.”¹

¹ Casualty Actuarial Society “Overview of Enterprise Risk Management,” 2003; adopted by Society of Actuaries, 2005; incorporated in Actuarial Standards Board Actuarial Standards of Practice No. 46 (2012) and No. 47 (2012).



ERM in practice – Zurich Insurance example



Mission and objectives of ERM at Zurich

Mission

The mission of risk management at Zurich is to promptly identify, measure, manage, report and monitor risks that affect the achievement of strategic, operational and financial objectives. This includes adjusting the risk profile in line with the Group's stated risk tolerance to respond to new threats and opportunities in order to optimize returns.

Objectives

- Protect the capital base by monitoring that risks are not taken beyond the Group's risk tolerance
- Enhance value creation and contribute to an optimal risk-return profile by providing the basis for an efficient capital deployment
- Support the Group's decision-making processes by providing consistent, reliable and timely risk information
- Protect Zurich's reputation and brand by promoting a sound culture of risk awareness and disciplined and informed risk taking



Zurich's Risk & Control Framework



Actuarial involvement ?

Zurich's Risk & Control Framework



Zurich's risk management framework fosters integrated view of risk

Risk Governance

Zurich Risk Policy (ZRP)

- Risk ownership, roles and responsibilities
- Limits by risk type
- Mandatory
- Regularly updated and communicated

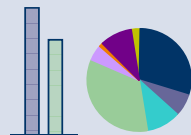


More quantitative

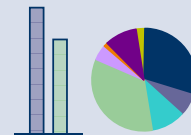
Risk Tolerance

- Defines and informs risk limits
- Takes a shareholder view
- Capital-at-Risk, Earnings-at-Risk, financial flexibility and franchise value

Capital-at-Risk

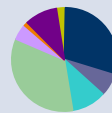
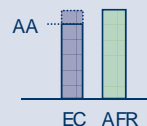


Earnings-at-Risk



Economic Capital (EC)

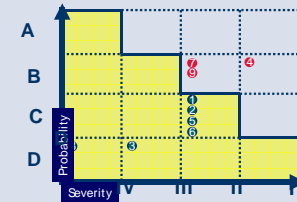
- Set target EC at AA level
- Takes a policyholder view (1/2000 years)
- Compare to Available Risk Capital (ARC)



More qualitative

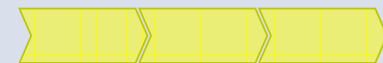
Total Risk Profiling (TRP)

- Management view of risks
- Proprietary tool for risk identification and assessment
- 3-5 year time horizon



Operational Risk & Control

- Integrated Risk & Control framework and methodology (Top Down Scenarios, Operational Risk Assessments, Issue Register, Loss Events, etc.)
- Operational risk management
- Internal controls (SOX)



Risk reporting

Economic capital (EC) basics

How much “capital” is sufficient that the company can meet all its policyholder obligations with 99.95% probability?

We need a consistent risk measure across all risk types, business lines, regions, products etc.



Economic capital

Credit Risk
Investment and reinsurance

Market/ALM Risk

Life liability Risk

Premium and Reserve Risk
(including Nat Cat)

Operational Risk

Business Risk

Determining economic capital

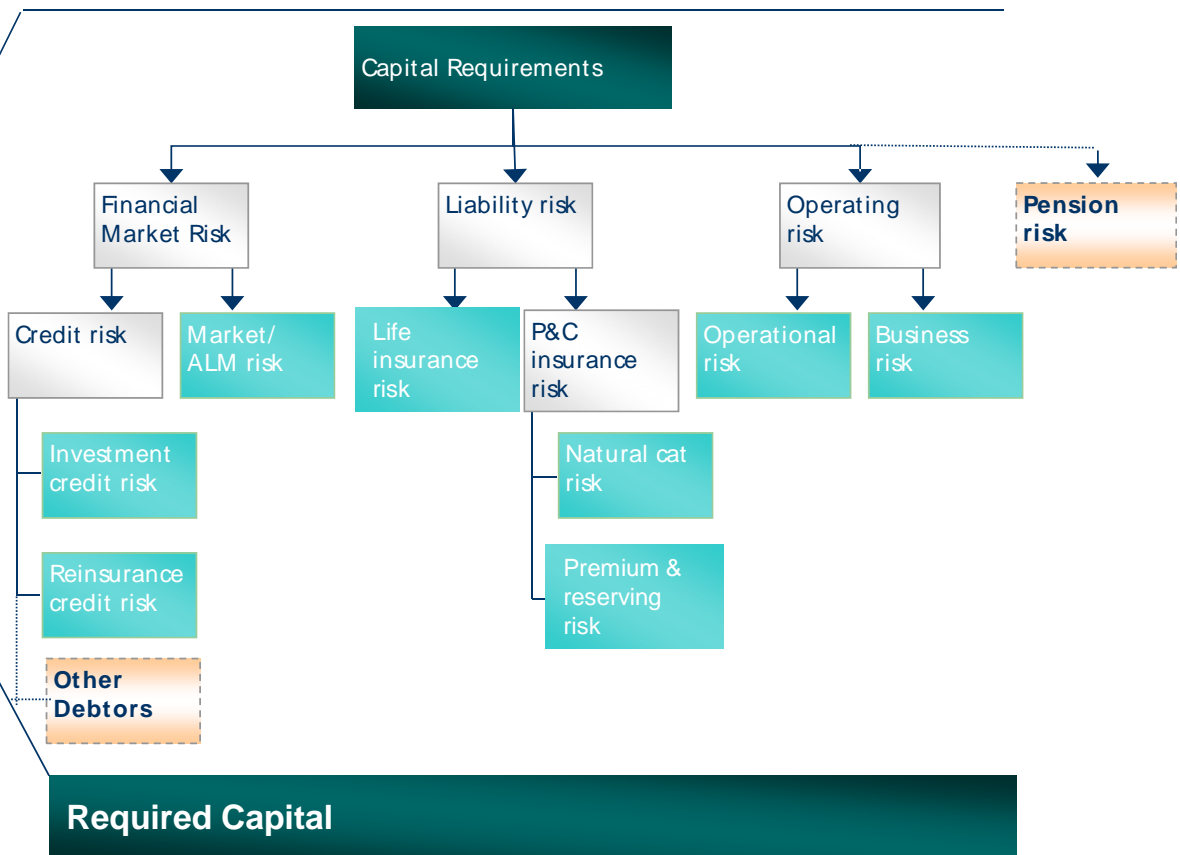
Z-ECM “risk landscape”

Definition of risk

Risk is defined as the **volatility in Zurich’s economic value** over the one year time horizon.

Model is used for more than just measuring risk...

- Modeled risk type
- New risk type



Actuarial involvement?

Determining economic capital

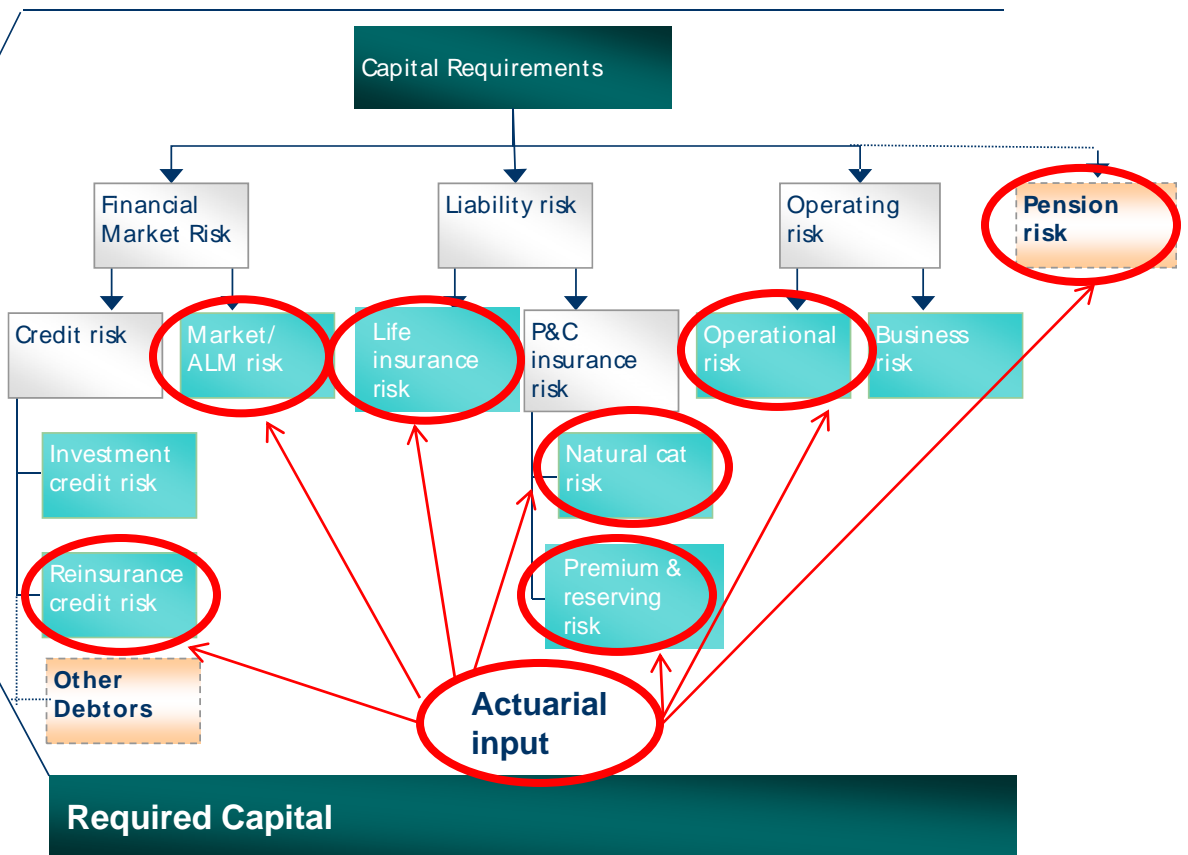
Z-ECM "risk landscape"

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Zurich's Total Risk Profiling (TRP) approach

1 Generic TRP process ...

1. Identify potential risk issues

- Open brainstorming
- Review of generic scenarios



2. Develop risk scenarios

- Vulnerability
- Trigger
- Consequence



3. Assess and quantify current rating

- Severity / Probability



4. Define risk priority boundary and prioritize risk scenarios



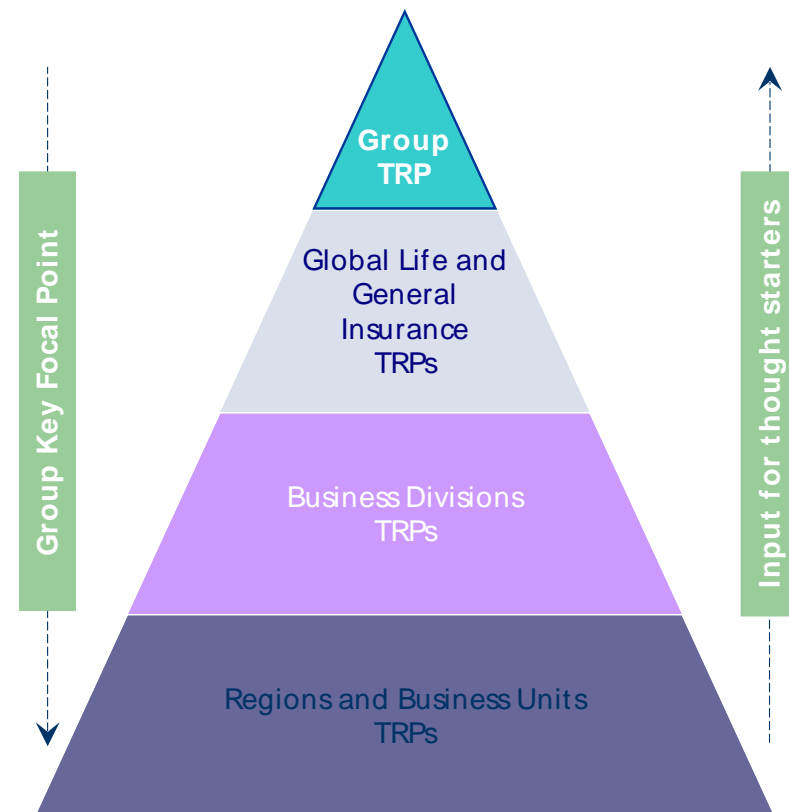
5. Develop improvement actions for prioritized scenarios

- Assess target rating
- Name a responsible person
- Set a due date



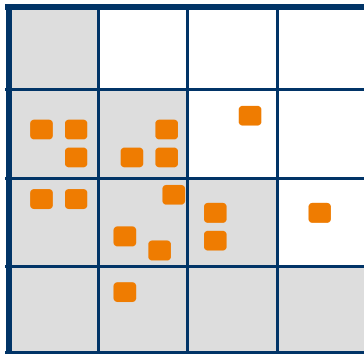
6. Follow-up on improvement actions quarterly

2 ... at all levels of the company



Annual TRP process at Zurich

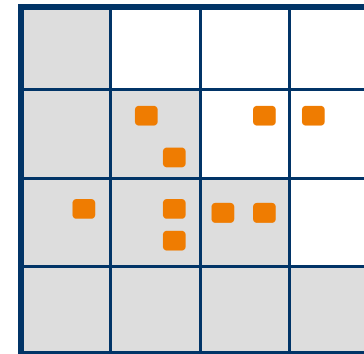
20xx GEC TRP signed-off
16 risk scenarios prioritized



Starting point
22 thought starters

1. Thought starter
2. Thought starter
3. Thought starter
4. Thought starter
5. Thought starter
6. Thought starter
7. Thought starter
8. Thought starter
9. Thought starter

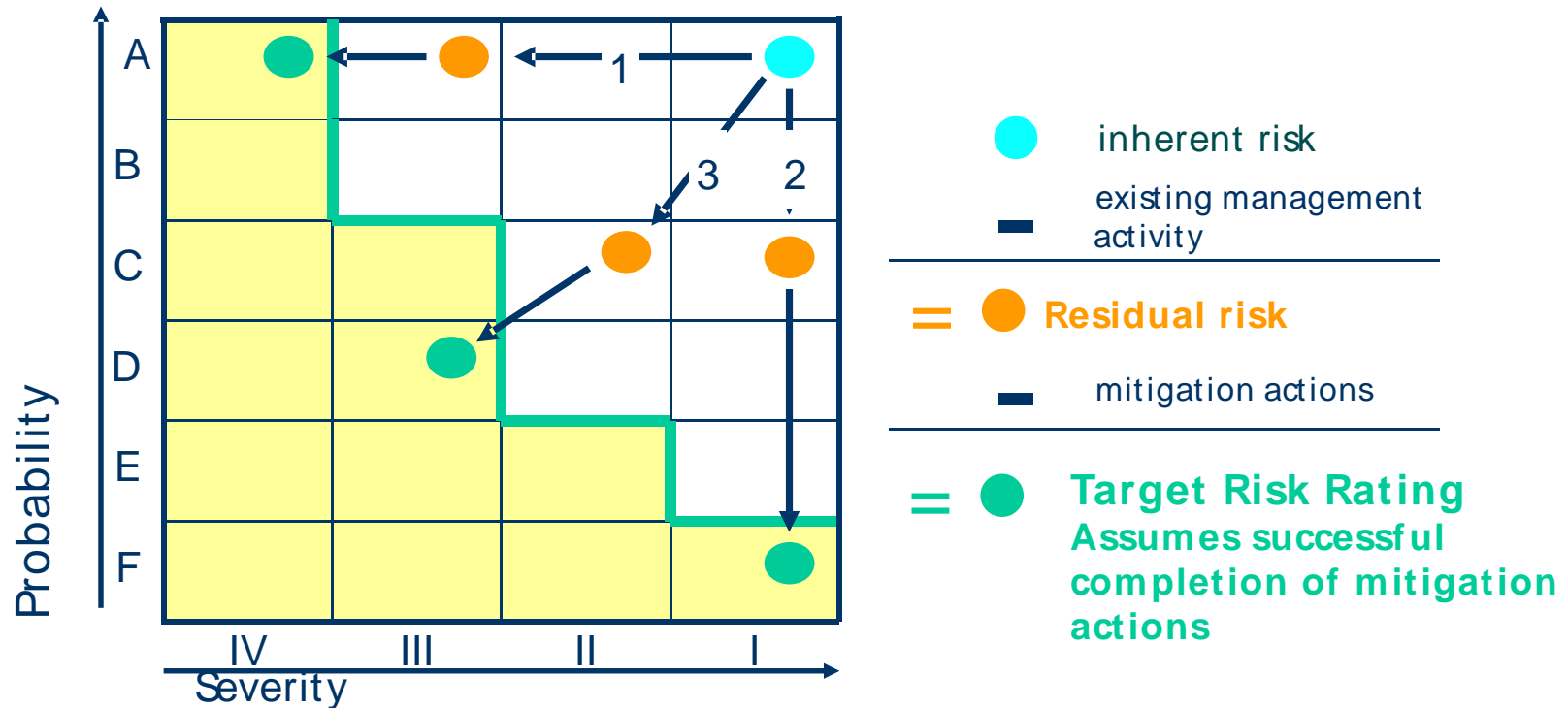
20xx+1 GEC TRP signed-off
9 risk scenarios prioritized



* GFRC = Group Finance and Risk Committee



Inherent vs. residual risk



Residual risk should consider:

- The effectiveness of Controls and Management activities
- Unplanned or Unexpected event

Challenges in ERM implementation/execution



Organizational challenges

- Maintaining clarity in the “three lines of defense” model
 - Resisting “gravitational pull” exerted on 2nd and 3rd lines of defense
 - Aligning accountability and authority in a shared services, team-based work environment
- The “red light, green light” problem
 - Proliferation of heat maps can lead to confusion

Application	Common interpretations of color ratings		
Risk rating	High	Medium	Low
Risk status	Above tolerance limit	Near tolerance limit	Within tolerance limit
Mitigation status	Severely overdue	Overdue	On track
Relevance	High	Medium	Low
Audit finding	Ineffective	Needs improvement	Effective



Technical challenges

- Risk aggregation and correlation
 - Need to assimilate results from multiple models
 - Allocating ‘diversification benefit’ across BUs, LOBs, geographies
- Capital allocation
 - Legal entity structure vs. management structure
 - BU/LOB/Market Basket
- Operational risk quantification
 - Quality and quantity of loss event data
 - Definition of operational risk (loss reserve errors, e.g.)
 - Reliance on SME opinions where data is lacking
- Model validation, calibration
 - Alignment with regulatory/rating agency capital models – SST, SII, NAIC, etc.

Actuarial standards of practice in ERM



Actuarial standard of practice No. 46

Actuarial Standards Board (US)

ASOP No. 46 – Risk Evaluation in Enterprise Risk Management, adopted September, 2012

- This standard focuses on five aspects of risk evaluation: risk evaluation models, economic capital, stress testing, emerging risks, and other risk evaluations.
- Risk Evaluation System—A combination of practices, tools, and methodologies within a risk management system used to measure the potential impacts of risk events on the performance metrics of an organization.



Actuarial standard of practice No. 47

Actuarial Standards Board (US)

ASOP No. 47 – Risk Treatment in Enterprise Risk Management, adopted December, 2012

- This standard focuses on four aspects of risk treatment: determining risk tolerance, choosing risk appetites, setting risk limits, and performing risk mitigation activities.
- Risk Treatment—The process of selecting actions and making decisions to transfer, retain, limit, and avoid risk. This can include determining risk tolerance, choosing risk appetites, setting risk limits, performing risk mitigation activities, and optimizing organizational objectives relative to risk.



International Standard of Actuarial Practice on ERM (discussion draft)

- The ERM ISAP will apply to all actuarial work in the areas of:
 - The evaluation and reporting of risk positions; and
 - The treatment of risk within a control cycle
- Specifically, this ISAP will address the following topics:
 - The identification, evaluation and reporting of risk positions to company management and boards, as well as to regulators/supervisors, through risk dashboards and other methodologies;
 - Economic capital modeling and methodologies for capital allocation;
 - Stress testing;
 - Determination of insurance risk metrics;
 - Determination of other risk metrics (such as duration, convexity, delta);
 - Development of risk tolerances, appetites and limits;
 - Asset /Liability management; and
 - Risk mitigation techniques including pooling, hedging, and reinsurance program design and technical selection.



CERA Update



What is the CERA credential?

The Chartered Enterprise Risk Actuary (CERA)* risk management credential is the globally-recognised Enterprise Risk Management (ERM) qualification. CERA is one of the most comprehensive and rigorous enterprise risk management qualifications available. It aims to address the urgent need for highly-qualified risk management professionals worldwide, especially in the financial sector

* Possible variations of “CERA” include:

- Chartered Enterprise Risk Analyst
- Chartered Enterprise Risk Actuary
- Certified Enterprise Risk Analyst
- Certified Enterprise Risk Actuary



CERA Global Association (CGA)

Organization	Home Country	# of CERAs	Acceding Party	Award Signatory	CGA Board
The Institute of Actuaries of Australia	Australia	120	Y	Y	Y
Canadian Institute of Actuaries	Canada	1*	Y	Y	Y
Actuarial Institute of Chinese Taipei	Chinese Taipei		Y		
Deutsche Aktuarvereiningug e. V.	Germany	84	Y	Y	Y
Institut des Actuaire	France	72	Y	Y	Y
Israel Association of Actuaries	Israel		Y	Y	Y
Institute of Actuaries of Japan	Japan	9	Y	Y	Y
Colegio Nacional de Actuarios A.C.	Mexico		Y		Y
Het Actuarieel Genootschap	Netherlands	11	Y	Y	Y
Actuarial Society of South Africa	South Africa	25	Y	Y	Y
Svenska Aktuarieföreningen	Sweden		Y	Y	Y
Swiss Association of Actuaries	Switzerland		Y	Y	
Institute and Faculty of Actuaries	United Kingdom	146	Y	Y	Y
Casualty Actuarial Society	USA	115	Y	Y	Y
Society of Actuaries	USA	1,258	Y	Y	Y

*192 CIA members included in SOA and CAS counts.



How do organizations join the CERA Global Association?

An interested organizations must complete an application including evidence:

- of a resolution or similar agreement of its constituting body that the Applicant agrees to be bound by the terms of this Treaty and is satisfied that its internal governance arrangements (for example, its Constitution, rules and regulations) are such that it is able to meet all the obligations which would be imposed on it under this Treaty;
- that the Applicant has taken all administrative steps necessary to ensure that it will comply with the Treaty immediately upon accession; and
- that the Applicant is a Full Member Association of the IAA (as defined from time to time).



How do organizations qualify to award the CERA designation?

An interested organization generally needs to meet requirements similar to those of an Acceding Party, AND must also:

- undertake certain due diligence with respect to Intellectual Property Rights concerning the CERA in its jurisdiction of domicile;
- demonstrate an ability to provide educational programs that cover a sufficient portion of the ERM syllabus and include examination and/or other assessment processes suitable for assessing candidate knowledge of the ERM syllabus;
- have a CPD process in place that includes ERM;
- have an appropriate process for review and appeal of decisions not to award the designation.

A separate Award Signatory application is required.



How do candidates qualify for CERA?

- Australia: meet the Institute's requirements for using the designation "actuary" and complete Course 7A ERM
- Japan: attain Fellowship in IAJ, pass UK ST9 ERM Specialist Technical exam and complete a 1.5 day seminar
- Netherlands: attain Fellowship in AG, complete 4 separate one-week seminars, each with a required examination component
- South Africa: attain Associate or Fellow status, pass F106 ERM exam and complete C100 2 day seminar
- UK: attain Associate or Fellow status, complete ST9 exam, attend CERA seminar
- CAS: attain Fellowship status or attain Associate status and pass exams 7 and 9, complete ST9 exam, complete 3 day CERA seminar
- SOA: complete five exams, meet an experience requirement, complete one online course, and attend one in-person course on professionalism; current members can typically earn the CERA credential by passing one exam and completing one online course



Questions ?

